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An Address.¹

By W. D. KEITH CRAIG.
Sydney.

I WOULD like to join the Acting President of the Medical Board of New South Wales, Dr. Cotter Harvey, in expressing my deep regret for the loss which we have sustained by the death of the late President, Dr. Witton Flynn.

Graduation day was a monumental one in your lives, as it was in the life of every graduate. Today is also an important one for you, because you have received certificates which are evidence that you are registered medical practitioners in the State of New South Wales.

This carries with it privileges and great responsibilities. It is for you to see that you do not abuse the privileges, and that you accept the responsibilities in such a way that it may truly be said that the profession has been enriched by your presence in it.

It is most important for you to make certain that you are familiar with the provisions of the *Medical Practitioners Act* of New South Wales, and with the Regula-

tions, so that you could not through ignorance make any mistake which might lead you into serious trouble.

You have been greatly assisted in this respect, because you have received a brochure, which gives advice about the conduct of your future practice. The brochure contains valuable information and should be very carefully studied.

Another Act, *The Police Offences (Amendment) Act*, deals, amongst other things, with your obligation to enter in a register, in the manner prescribed, all drugs on the dangerous drug list in your possession, purchased or prescribed by you. It also deals with the method of prescribing these drugs. The list is being added to from time to time; information on this is published in THE MEDICAL JOURNAL OF AUSTRALIA and appears in the British Medical Association notices. So that there could not be any possible doubt in your minds, I would like to make it perfectly clear that every single dose of a drug on the dangerous list administered by you must be recorded in the register. This register, which you may be called upon to produce at any time, can be purchased at the Government Printing Office.

Be certain too to write prescriptions for these drugs in the manner laid down. Also remember that it is a serious offence knowingly to prescribe deleterious drugs merely for the purpose of addiction.

¹ Delivered to recent medical graduates at a registration ceremony in Sydney on December 21, 1955.

There have been instances where doctors have been prosecuted for the technical breaches of this Act; so it is essential for you to understand its provisions.

Most of you on the completion of your hospital work will become practitioners of medicine in one sphere or another. The majority of you no doubt, for a time at least, will become general practitioners. If those of you who contemplate specializing early in your lives have the opportunity of spending a few years in general practice, do not miss it, because the experience you will gain will be of the utmost benefit to you in any specialty. Not only will you gain a wide experience in medical practice, but you will have the possibility of obtaining an insight into human nature which is perhaps denied any other section of the community. If you miss the chance, it may be lost to you forever. It has been said that, with all the work necessary in order to specialize, it is almost impossible to find time, to spare the years, for general practice. Let us hope that this is not so.

Higher degrees are most desirable, they are often necessary and sometimes they are essential; and anyone desirous of proceeding to a higher degree should be given every encouragement to do so.

I feel sure, however, that we all sincerely trust that we shall never see the day when the only qualification for an appointment is the number of higher degrees possessed by the applicant.

Before entering general practice, it would be wise for you to act as *locum tenens* in various practices, in order to ascertain, as far as you are able, what type of practice would suit you best. You may prefer the country or the city, an industrial or a residential area. You may decide to commence a new practice, or to buy into an established one. Then again there are solo, partnership and group practices.

All these things should be carefully considered by you, in order to ensure that you commence your work in the right environment.

Group practice has become popular in recent years, and has many obvious advantages. There is a danger, however, that it could interfere with the doctor-patient relationship, and cast into the background the family doctor, who for so many years has been the backbone of medical practice.

When acting as *locum tenens*, always do your work conscientiously and to the very best of your ability; I mention this to you because there have been instances where doctors have not given the attention to their work which might have been expected of them.

Throughout your lives see to it that you are ardent searchers for the truth. In that search do not permit yourselves to become case-hardened clinicians. In other words, do not permit yourselves to look upon people merely as "cases"—cases to palpate, to percuss and to listen to, cases on which to make this test and that. Treat people with respect and with kindness, remembering always (and this is so important) that those who consult you are not well, they are worried, many indeed are frightened, afraid of what they may be told. A little sympathetic understanding will go a long way in establishing that confidence between doctor and patient which is so desirable and necessary.

It may well be that your greatest satisfaction will come, not from your skill in curing the sick, but from reassuring those who do not need your aid, and from comforting those who are beyond it.

Be attentive at all times, never over-attentive. It would indeed be difficult to conceive anything more dishonest or dishonourable than to exaggerate the seriousness of an illness, or to prey upon a person's fears for material gain.

When you commence practice, problems are sure to arise. Never hesitate to seek the advice of a senior colleague, and when in doubt always ask for a consultation, or refer the patient to a specialist. To be a resourceful practitioner is one thing, but to attempt work which is obviously beyond us is quite another; and even the best of us, in any walk of life, cannot hope to achieve every-

thing unaided. So then, accept gratefully the help which will be so generously given you. By doing so, you will save yourselves a great deal of anxiety, and you will earn the respect of the people amongst whom you practise.

One of our teachers, some years ago, used to say that we should never even think the words "I'll chance it", because we are not chancing anything. It is the patient who is taking the risk. I pass his observation on to you.

When in practice, too, you may be requested to do things which are criminal, things which are dishonest, and things which you have a feeling are just not quite right. If you firmly refuse to have anything to do with such requests, you will find that they will not often be made to you.

The writing of medical certificates will form an important part of your duties. Always be certain that what you write is your own honest opinion—never allowing yourselves to be influenced in any way by what at times the person seeking the certificate may desire you to write. If you always make that your rule, you will not go far wrong.

A medical practitioner should not under any circumstances whatsoever allow himself to be talked into, or bought into, issuing a certificate which is false or misleading in any way.

I feel sure that it is hardly necessary for me to mention this to you, but I do so because the consequences could be far reaching and serious.

I do not suppose that there is anything more trying in a doctor's life than the night work which he is required to perform. Most of this work is obviously of an urgent nature; but there are times when we, with our training, know that immediate attention was unnecessary. However, if we consider the position in another way, and ask "Could a layman be expected to know this?", our conclusion in the majority of cases will be that the request to attend was not thoughtless or unreasonable.

There have been complaints that it is difficult to obtain medical attention at night and during week-ends. Everyone is entitled to receive attention at all times. The nature of their work, however, makes it difficult for doctors to be always available; but by planning and by mutual arrangements between practitioners, the problem should be capable of a satisfactory solution.

Try to keep abreast of the latest developments in medical science by reading current medical literature; and, at the right time and in the right place, never miss an opportunity of discussing cases and exchanging thoughts with your medical friends. I say at the right time and in the right place, because we all know only too well the man who, wherever he is, whether it be in the foyer of a theatre, at a social gathering or even at an annual dinner, has what he calls "an interesting case" to talk about, to anyone who will listen.

There are occasions when this could only be described as in very bad taste. The exchange of thought is one of the best means of education which we possess, and is one reason why living in a hospital, especially in a large teaching hospital, can be of such great and lasting value.

Speaking of a theatre foyer prompts me to remind you to get into the habit of taking regular recreation and holidays. In a profession which demands so much, it is a duty which you owe to yourselves, your families and the public. It is very difficult indeed for a tired doctor to be an efficient one, and your footballer friends will tell you that a half-back is of much more value to his side standing on his feet than lying on the ground.

We should all try to exercise a large degree of tolerance, and to let that tolerance especially be shown to our colleagues. It is easy, it is far too easy, to make excuses for ourselves, and far too easy to criticize the other fellow. If we ever feel inclined to give ourselves a pat on the back because we have made a diagnosis which others have missed, we should always remember that when the patient was presented to us the diagnosis may have been only too obvious, and yet when he was seen by others it could have

been most obscure indeed. There is no need for me to emphasize what a better world we would live in if more tolerance was abroad; so let us set an example in this regard.

There is another subject about which I would like to speak to you before I close, and that is what is known as the right of free choice. That is the right of a patient to have the doctor of his or her choice. This sometimes causes misunderstanding between practising doctors.

The reason for this is that we are too apt to look upon, and to think of, people as "our patients" because we happen to have attended them for some time, and, when they leave us, resent it. With the right of free choice this is obviously wrong, because within the limits of etiquette and ordinary decency, anyone has a perfect right to change his doctor should he so desire.

Admittedly there are times when it might appear to us that the privilege has been abused, and it will be the experience of every one of you who is engaged in medical practice that people whom you have conscientiously treated for years, people who have sworn to you everlasting gratitude, will for no apparent reason desert you. So when your turn comes, take it standing up. It is their privilege, and we would not have it otherwise.

Life in medical practice in any sphere is not an easy one. In fact it is hard and exacting. To say otherwise would be humbug; but ours is a grand calling, and we should all feel proud and honoured to be members of a profession, the keynote of which is service, and in which that service can mean so much.

Thank you for your attention. It has indeed been an honour and a privilege to address you this afternoon. If I appeared in any way to have lectured you, I ask your forgiveness; but I endeavoured, in a rather disjointed manner I must confess, to tell you a few things which I thought might be of interest and perhaps of some help to you, and in conclusion ask you to be tolerant and to play the game at all times.

BOVINE PHTHISIS IN QUEENSLAND.

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AND

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"BOVINE PHTHISIS" is a short though perhaps ambiguous term used to designate pulmonary tuberculosis in man caused by the bovine type of *Mycobacterium tuberculosis*. At the beginning of this century the opinion was held by Koch that the human subject is immune against infection with bovine bacilli, or is so slightly susceptible that it is not necessary to take steps to counteract the risk of infection (Francis, 1947). Since then the bovine strain has been demonstrated in all forms of tuberculosis in man, but most commonly in non-pulmonary tuberculosis in childhood. For instance, Mushatt (1940) isolated the bovine strain from 17 out of 50 children aged under fourteen years, suffering from non-pulmonary disease; 10 of the 14 children with cervical adenitis yielded organisms of the bovine strain. Similar findings have been reported in Australia (Webster, 1932, 1935; Penfold, 1924) and New Zealand (Finlayson and Edson, 1947).

It has been much less generally realized that pulmonary tuberculosis in adults may be due to the bovine strain. Price (1939) was able to collect reports of 320 cases of bovine phthisis of which 163 were from Great Britain, 88 from Denmark, 29 from the Netherlands, and the remainder from other European countries. Griffith and Smith (1940)

investigated 972 patients in north-east Scotland, recovering the bovine bacillus from 68 of these, which added 24 cases of bovine phthisis reported since the paper by Price. Amongst urban patients they found bovine tubercle bacilli in 4.4% of their cases, whilst 9.1% of their rural patients yielded bovine tubercle bacilli. These findings represent the highest incidence of bovine infections reported in pulmonary tuberculosis apart from the survey by Sigurdsson (1945) in Denmark.

In other parts of the United Kingdom the bovine strain is apparently less common. Routine typing of cultures obtained from patients at the Cheshire Joint Sanatorium (Cutbill and Lynn, 1944) yielded 2.2% of bovine strains. Griffith and Munro (1944) summarized their English findings as 2.0% for the North Midlands and 1.0% for the south of England. Only one case has been reported from Northern Ireland (Reilly, 1950). Although neither Cumming (1935) nor Kearney *et alii* (1949) found any cases in Eire, nine have recently been reported (National Tuberculosis Survey, 1954).

Sigurdsson (1945) typed the tubercle bacillus from 566 patients, and he found bovine tubercle bacilli in 67 of his 165 rural patients, in 11 out of 39 who worked partly in town and partly in the country, and in 13 out of his 362 urban patients. This is an incidence of bovine strains of approximately 40% in his rural patients, by far the highest incidence of bovine strains reported.

The incidence of the bovine strain in non-pulmonary tuberculosis in Australia is apparently not high. Webster (1952) showed that, contrary to overseas experience, bone and joint tuberculosis in Australia is due to the human strain of the organism.

Even in the United Kingdom it was found that in an extensive recent survey (Wilson, Blacklock and Reilly, 1952), typing of some 2000 strains of tubercle bacilli from non-pulmonary lesions showed bovine strains in only 26.3% in England, 17% in Wales, and 21.7% in Scotland.

Previously, typing of bacilli obtained from the sputum or gastric contents of adult patients with pulmonary tuberculosis in Australia has only once yielded the bovine strain of tubercle bacilli (Department of Health and Home Affairs, Queensland, 1945). Holmes and Robertson (1930) formed the opinion that sufficient evidence had been obtained to indicate that the bovine strain of organism was rarely found in tuberculosis of the respiratory system in adults in this country. They recorded the results of the investigation of 142 cases of pulmonary tuberculosis in adults, in all of whom the organism was shown to be of human type.

Webster (1941), in further studies on tuberculosis in childhood, found an incidence of 8.9% of bovine type organisms in non-pulmonary tuberculosis, the bovine strains being all obtained from cases of tuberculous adenitis in children. He mentions that a study of 183 adults, most of whom had non-pulmonary forms of tuberculosis, revealed only the human type of the organism. There were in this series 14 samples of gastric content and two of sputum from children which all yielded human strain bacilli. There has been one case of pulmonary tuberculosis due to the bovine strain reported from New Zealand (Lyth and Edson, 1943). The patient was a dairy farmer who gave no history of extrapulmonary disease. In two of the cases we report here the patients were dairy farmers, one of them working with a highly infected herd.

The bovine organism has usually been thought to infect man by way of the alimentary tract. Reports of autopsies (Griffith, 1940; Griffith and Munro, 1944) showed anatomical evidence in nine out of 14 cases that infection had taken place through the alimentary tract. The post-mortem examinations in the other five cases were inconclusive. In Great Britain there is a preponderance of female over male patients, and Griffith and Munro (1944) are of the opinion that this suggests a milk-borne epidemic. In their series only 20 patients out of 241 were farmers or farm servants.

Information on the incidence of tuberculosis in both beef and dairy cattle in Queensland was given by Seddon

(1953) and by Francis (1947). In recent years a vigorous campaign of tuberculin testing of dairy cattle with slaughter of positive reactors has resulted in the incidence in south-east Queensland having fallen from 11.86% in 1947 to 0.64% in 1951-1952 (Department of Agriculture and Stock, 1952), though even recently isolated herds have shown a reactor rate up to 50% (Department of Agriculture and Stock, 1953). The position with beef cattle in Queensland is also subject to wide variations (Department of Agriculture and Stock, 1954); while most cattle properties do not have any of their cattle condemned as tuberculous, one property had 28% of its cattle condemned. There is therefore quite a significant amount of tuberculosis amongst cattle coming to the various abattoirs of this State. A survey of condemnations amongst cattle slaughtered in North Queensland abattoirs is shown in Table I. It is pointed out that these condemnations represent much fewer than the total number of animals infected, as only those showing sufficient infection to warrant condemnation are recorded (Department of Agriculture and Stock, 1954).

TABLE I.
Condemnations for Tuberculosis at Northern Abattoirs, 1953-1954.

Cattle.	Abattoirs.		
	Number 1.	Number 2.	Number 3.
Bullocks:			
Number treated ..	39,454	38,060	50,377
Number condemned ..	187-25	119-75	53-25
Percentage condemned	0.42	0.31	0.11
Cows:			
Number treated ..	6244	5188	12,077
Number condemned ..	56.5	56.25	24.5
Percentage condemned	0.90	1.08	0.20

CASE I.—In October, 1953, an abattoir labourer, aged forty-eight years, was referred to us. He gave a history of having worked in the "tank room" of one of the abattoirs near Brisbane for ten years. Here, his duties included the handling of carcasses and organs from condemned animals, including those condemned for tuberculosis. These were thrown into a "breaking up" or "hogging" machine, which reduced them to pulp prior to conversion into fertilizer. A coarse spray of fluid and meat is thrown back by this machine after each portion of meat is tossed into it, and contaminates the workers and their surroundings. This man was found to be suffering from active pulmonary tuberculosis, and because of his occupational history the mycobacteria isolated from his sputum were examined, and found to be of the bovine type.

After this experience, an effort was made to obtain organisms for typing from some 72 abattoir workers and dairy farmers on the Queensland Tuberculosis Case Register. Because of their dispersal through the State, and as most had been treated and were "sputum-negative", organisms were obtained from only 16; in only one of these were the organisms definitely bovine. Three cultures were dysgonic and produced disease in rabbits on intraperitoneal but not subcutaneous inoculation; they are excluded from this series. In addition, for farmers and others with possible occupational exposure coming to our notice since the first case was discovered, typing of organisms was requested, while the Queensland Laboratory of Microbiology and Pathology also typed any cultures which were dysgonic. As a result, in all six proven bovine strains have been found from 26 cultures injected into rabbits and into guinea-pigs. These came from two abattoir workers, two dairy farmers, a stockman and the driver of a bullock team. In the Queensland case previously reported the patient was also an abattoir worker (Department of Health and Home Affairs, 1945).

It seems, therefore, that in Queensland bovine phthisis is an occupational disease. All our patients so far have had contact with cattle and ample opportunity to acquire the bacillus by inhalation. We have not yet encountered a case in a woman. This is contrary to British experience,

in which human infection with the bovine type of tubercle bacillus is chiefly caused by the ingestion of milk (Wilson, Blacklock and Reilly, 1952). However, it is now realized that direct inhalation infection with the bovine type of bacillus is more important than was assumed (Cutbill and Lynn, 1944; Griffith and Munro, 1944; McKay, 1951). Sigurdsson (1945) in Denmark clearly showed the danger to man of direct inhalation infection when in the cow-stable. He demonstrated tubercle bacilli in the dust in stables housing tuberculous cattle, and concluded that "stables with strongly tuberculous cattle imply the same danger of inhalation infection to man as do the home of phthisics".

In Queensland, dairy cattle are fed in open pastures throughout the year, so the risk of infection to attendants is probably less than where cattle are housed in winter. We believe, however, that our two patients (Cases III and IV) who were dairy farmers, would have had ample opportunity to inhale bacilli either in the milking shed or while attending cattle. It is of interest that subsequent tuberculin testing of the herd belonging to the patient in Case III showed 20 out of 79 head of cattle to be tuberculin reactors, and three out of 20 head on an associated farm reacted. On being slaughtered, seven had generalized tuberculous lesions and 16 had various lymph nodes involved. In two other cases here reported, the patients were associated with cattle, but had no experience of dairying. One, the bullock driver (Case VI), stated that he "has been handling coughing bullocks since he was born". We also report two cases among abattoir workers; both of these patients were associated with the disposal of condemned carcasses.

It may be noted that clinically the six cases of bovine phthisis we have encountered so far were in no way unusual. It is our impression that the disease was neither more nor less severe than in other patients, and the response to treatment did not noticeably differ from the usual response. Rich (1951) discusses the resistance of the human being to the bovine bacillus, and concludes that there is at present no satisfactory evidence to warrant the statement that the human being possesses a higher degree of natural resistance to the bovine than to the human type of bacillus.

The identification of the bovine type of tubercle bacillus depends on its pathogenicity for rabbits, the rabbit being highly susceptible to the bovine tubercle bacillus and fairly resistant to the human tubercle bacillus (Soltys, 1952). Dubos (1953) shows that this observation was first made by Villemin in 1863 in his book "*Études sur la tuberculose*", and gives this quotation, in translation, from Villemin:

It is remarkable that none of our rabbits, inoculated with human tuberculosis, has presented a disease so rapidly and completely generalized as that obtained by inoculation with the tubercle of the cow. This would suggest that tuberculosis of bovine origin inoculated into the rabbit shows a greater activity than that of man inoculated into the same animal.

In our six cases the bacillus has been shown to produce extensive progressive disease in the rabbit after subcutaneous inoculation, and we have accepted as bovine only those strains which are highly virulent to the rabbit when so inoculated. As stated, bacilli from three cases produced disease on intraperitoneal inoculation but not on subcutaneous inoculation. We have found cultural characteristics on Löwenstein-Jensen medium not sufficiently reliable to allow diagnosis of a bovine strain without animal confirmation, though dysgonic colonies with slow growth should arouse suspicion that the strain may be bovine. Twenty-six cultures have been suggestive of a bovine strain, but only six of these were virulent in rabbits. It must also be pointed out that as in five of these six cases positive findings were obtained on examination of smears, it was only because routine cultures were prepared that these cases were discovered to be due to the bovine strain.

In the case previously reported in New Zealand (Lyth and Edson, 1943) rabbit inoculation was by the intravenous route, 0.01 milligramme producing fatal generalized

tuberculosis on the thirty-fifth day. This case is acceptable as a case of bovine phthisis, as human bacilli injected intravenously into the rabbit in a dose of 0.01 milligramme or less rarely, if ever, produced death, but larger doses may give rise to progressive fatal disease (Soltys, 1952).

Reports of Cases.

CASE I.—This abattoir worker, aged forty-eight years, presented in October, 1953, with a history of a productive cough of three months' duration. X-ray examination revealed bilateral upper zone disease with cavitation, and positive findings were obtained on examination of smears of the sputum. The patient gave no history of extrapulmonary tuberculosis. Soon after his admission to hospital he was transferred to a mental hospital (he had been previously admitted on several occasions to psychiatric wards), where prolonged chemotherapy was given. When he was last examined in June, 1955, he was symptom free, and X-ray examination revealed some residual fibrotic lesions in the apices of both lungs, but without any evidence of cavitation. The classification by the World Health Organization Four Digit Code was as follows: at diagnosis, 9689; in June, 1955, 5050.

CASE II.—This abattoir worker, aged fifty-eight years, had been dyspnoeic on moderate exertion and had a productive cough for some twelve months before he first attended in December, 1952. X-ray examination revealed nodular disease throughout both upper zones, with a cavity at the apex of the left lung. Examination of sputum smears gave positive findings. The X-ray appearances have persisted unchanged, and the patient's clinical condition has not altered. He made no response to chemotherapy and sanatorium care. On the other hand, his condition has not noticeably altered in the twelve months since his discharge from hospital. The classification by the World Health Organization Four Digit Code was as follows: at diagnosis, 9382; in June, 1955, 9380.

CASE III.—A dairy farmer, aged fifty-five years, presented in November, 1954, complaining of left pleuritic pain and rapid weight loss during the past three months. X-ray examination revealed a dense infiltration throughout the left upper zone, and cavitation was seen. He is making a satisfactory response to sanatorium care and chemotherapy. Details of the prevalence of tuberculosis in this man's herd have been given. (This man resided in New South Wales, a few miles from the Queensland border.) The classification by the World Health Organization Four Digit Code was as follows: at diagnosis, 9689; in June, 1955, 1380.

CASE IV.—This dairy farmer, aged forty years, was discovered to be tuberculous in April, 1954, by a mobile microfilm unit. X-ray examination revealed a large cavity in the left upper zone, and examination of sputum smears gave positive findings. A leucite plombage was performed in November, 1954, with satisfactory results up to the present. Testing of the last herd with which the patient had contact gave negative results. The classification by the World Health Organization Four Digit Code was as follows: at diagnosis, 9378; in June, 1955, 5Th.Th.0.

CASE V.—A stockman, aged twenty-seven years, said that he was symptom free when an X-ray film of his chest in March, 1953, revealed a streaky infiltrate in the right infraclavicular region and in the apex of the left lung. Repeated gastric lavages were required before attempts at culture produced positive results. The patient has made satisfactory progress to date. The classification by the World Health Organization Four Digit Code was as follows: at diagnosis, 6051; in June, 1955, 1050.

CASE VI.—A bullock driver, aged sixty years, was first found to be tuberculous in 1950, when an X-ray film revealed fibrocavernous disease in both upper zones and in the left mid-zone, and basal emphysema. Examination of sputum smears gave positive results. He also had genito-urinary tuberculosis, and is the only one of these six patients with extrapulmonary tuberculosis. His condition slowly deteriorated, and he died in May, 1955. The classification by the World Health Organization Four Digit Code was as follows: at diagnosis, 9999; in June, 1955, dead.

Summary and Conclusions.

The isolation of the bovine type of tubercle bacillus from six adults with pulmonary tuberculosis is reported. All six patients had direct contact with cattle and had the opportunity to acquire their infection by inhalation. Our

findings suggest that tuberculous cattle represent a risk to farmers, stockmen and abattoir workers.

Acknowledgements.

We are greatly indebted to Dr. J. I. Tonge and Miss G. F. Lord, of the Laboratory of Microbiology and Pathology, for the laboratory investigations; to Dr. E. H. Derrick for directing our attention to the Queensland case which he previously reported; and to colleagues throughout Queensland and in New South Wales for their cooperation.

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SURGERY IN SYDNEY IN THE 1830's.¹

By A. M. McINTOSH,
Sydney.

LIGATION of the innominate artery for subclavian aneurysm was first reported by Valentine Mott of New York in 1818. The operation was unsuccessful, as were most other similar operations for many years. The first successful operation was that of A. W. Smyth in New Orleans in 1864; the first in Europe was that of Charles Coppinger, at the Mater Misericordiae Hospital in Dublin in 1893. As late as 1864 Erichsen wrote as follows in his "Science and Art of Surgery":

As its performance has hitherto in every instance entailed death, and, in all cases but one, a speedy death, to the patient, it should without doubt be banished from surgical practice: and I can think of no circumstance that should induce a surgeon in the face of the consequences that have hitherto invariably followed the application of a ligature to the brachiocephalic artery for subclavian aneurysm, again to have recourse to such a procedure.

It is remarkable that two of the earliest attempts to carry out this operation were made by Surgeon William Bland in the small settlement at Port Jackson. The earlier of these attempts was recorded in *The Lancet* of September 29, 1832, but does not seem to have caused much local comment. However, when he repeated the operation in 1837 he was subjected to very severe criticism from both professional and lay sources.

In the *Sydney Gazette* of Tuesday, November 21, 1837, the subjoined article appeared:

The Medical Profession.

The Benevolent Asylum presented a scene of unusual interest to the members of the Medical Profession in New South Wales on Monday week.

An operation was performed that day by Mr. Surgeon Bland, on a patient in the Asylum, of a description never before attempted in the Colony, and only once as far as we are aware in Great Britain. The operation is what is technically called "Aneurysm of the Subclavian Artery treated by Ligature of the Arterio Innominate". We have before us a report of the first instance of the operation being attempted by Professor Lizars at the Edinburgh Royal Infirmary on the 31st May last, as reported in the *Lancet* of June 17. The report of the progress of the patient up to the latest date of the intelligence was very favorable and it was hoped that the operation would prove highly successful. Professor Lizars performed the operation with much dexterity, the patient being detained on the table but fifteen minutes.

What may be the success of the operation at the Benevolent Asylum cannot yet be known. It is feared however that the patient will sink. The operation was performed by Mr. Surgeon Bland in the presence of Drs. Wallace, Nicholson and Neale and occupied nearly five and a half hours in execution, before the patient was relieved from his painful situation. Still it is creditable to the Colony that an operation of this nature can be performed at all. We should be glad of a report of the case from some one of the gentlemen present; the details may not present much interest to the general reader but for the benefit of Science we—and we have no doubt any of our contemporaries—will gladly devote space to its insertion.

This was not strictly accurate. William Bland had already in March, 1832, performed a similar operation on a convict, William Mullen, who had a subclavian aneurysm. Mullen died on the eighteenth day after the operation.

In the next issue of the *Sydney Gazette* the operation is again mentioned, but from an entirely different aspect:

The Medical Profession.

Under this head we inserted some remarks in our last number relative to the case of an individual on whom an operation of an exceedingly difficult nature had

been performed by Mr. Surgeon Bland at the Benevolent Asylum. The unfortunate man is since dead and his widow has called at our office to request our attention to some circumstances connected with the case of so extraordinary a nature as almost to preclude belief: we cannot altogether rely on the accuracy of her statement, nevertheless we think it deserving of enquiry.

The unfortunate woman alleges, that when informed by the medical attendant on her deceased husband at Maitland, that an operation, which could only be performed in Sydney, was necessary to give him even a chance for his life, she gave the medical man twenty pounds (a large sum for a woman in her circumstances), that being the amount he said was necessary to take her husband to Sydney, to procure the requisite Surgical Assistance and to maintain him in comfortable lodgings until the operation should be performed. Instead of being placed in lodgings the poor man was carried to the Benevolent Asylum and there supported at the expense of that Institution, while the Medical Man, pocketing the twenty pounds, returned at his ease to Maitland.

We have said that we do not vouch for the preceding Statement, we give it as received from the unfortunate widow, because we conceive that if her story be true her case calls loudly for enquiry. Although pretty well acquainted with the district of Maitland and the Surrounding territory we cannot recollect ever having heard the name of this medical gentleman before. We should feel obliged to any respectable resident in that part of the Colony to furnish us with authentic intelligence on this subject, to enable us to expose the medical man referred to to merited indignation if guilty, and to exculpate him from the charge should it be found otherwise.

Apparently there was no response to this request for information regarding the delinquent doctor; in fact, the subject was not again mentioned in the Press for over two months, and then the following appeared in the form of an anonymous letter in *The Colonist* (March 14, 1838):

To the Editor of the Colonist.

Sir/A short time since I read in the *Sydney Gazette* an account of a Surgical operation at the Asylum. I have waited anxiously in the expectation that an explanation would be given or the statement denied. The operation as stated was passing a ligature round the Arterio Innominate in a case of Aneurysm of the subclavian artery and the report says that "five and a half hours were consumed on the operation". If this is true an explanation is called for from the parties who operated, which is due to Science, to humanity, and to Society. When I take into account the simplicity of the operation, as laid down by the Modern Surgeons, I am at a total loss to know what could possibly have protracted the operation, and the unfortunate man's misery, to such an unheard of period. I am aware no surgeon can with certainty secure the success of an operation: but I have no hesitation in affirming that not one operation out of a thousand could possibly be successful if so long a time as five hours and a half were requisite for its completion.

I am Sir, etc., Investigator.

The following is the description given of this operation by Liston, of Edinburgh, who is considered to be the ablest Surgical operator in Europe; it is taken from his work entitled the "Elements of Surgery":

"The patient is either seated or semi recumbent. An incision from two inches and a half to three inches in extent is made in the course of the Carotid terminating over the Sterno-clavicular articulation. From that point another is carried along the upper margin of the clavicle to the extent of one inch and a half. The sternal attachment of the sterno-mastoid muscle is separated, the cervical fascia divided and the vessel exposed. During the dissection the internal jugular vein, the par vagum and the recurrent branch, the inferior thyroid artery, and the arterial distributions from the thyroid must be carefully avoided. The operator should by free external incisions, make a dissection sufficiently spacious to admit of his seeing the bottom of the wound distinctly as he proceeds. It is necessary that he not only feel but see what he is about to cut; groping is unsafe to say the least. Caution in passing the needle is here required equally as in ligature of the carotid; in such deep wounds the aneurysm needle of Weiss is sometimes found useful but in general the common one is sufficient.

¹Read at a meeting of the Section of History of Medicine, Australasian Medical Congress (British Medical Association), Ninth Session, Sydney, August 20 to 27, 1955.

During the dissection it must be borne in mind that the pleura is not far from the edge of the knife."

In connection with the above the following report of an operation of the same kind may throw additional light on the subject:

Extraordinary Surgical Operation.

In passing along the South Bridge yesterday forenoon our attention was arrested by a great crowd of gentlemen at the gate of the Royal Infirmary pressing inward. Joining in the crowd we were carried along with it to the Surgical hospital, where we found the operating theatre crammed to excess, chiefly by medical gentlemen and students; amongst these we recognized Sir George Ballingall, Dr. Campbell, Mr. Newbigging, the surgeons of the 14th Light Dragoons and 42nd Regiment, besides many Country surgeons. The excitement we have described was occasioned by the knowledge that an operation never performed in Great Britain was to be done upon a young man by Professor Lizars. The case was what is technically called Aneurism of the Subclavian artery, so near the heart that the first large trunk required to be tied namely the arteria innominata. The young man, a carter from Dalkeith, was placed upon the table and the Professor commenced by making an incision in the neck, and progressively cut down to the artery when the ligature was applied. The operation was completely successful. The patient who bore it with uncommon fortitude was only on the table for fifteen minutes altogether. This as we have said is the first operation of the kind which has been attempted in Great Britain. We understand that it was once successfully performed at Berlin by Dr. Graefe and once in New York by Dr. Mott." *Caledonian Mercury*.

Lizars's operation had already been reported in *The Lancet*. The editor of *The Colonist* thought this letter of sufficient importance to devote a column and a half of comment to it:

We have reason to suspect that some fearful blunder or mismanagement must have occasioned the protraction of the operation to the unheard of period of five and a half hours. Whether this blunder or mismanagement (if such it be) may have arisen from want of surgical knowledge, prudence or skill, it must be regarded as highly discreditable to the individual or individuals principally concerned in the operation: for the very thought that a fellow creature lay for five and a half hours in excruciating and lingering agony beneath the butchering knife of an unskilful but presumptuous operator cannot but excite a shudder of painful sympathy and even horror in the public mind which the parties to whom it must be unfavourable would do well to remove if they have it in their power.

He urged that regular and minute reports from public institutions should include the nature and results of all operations performed therein—in fact of all medical and surgical treatment: to the end that a feeling of responsibility and of liability to public approval or censure should be "kept up" in the minds of medical practitioners, which could not fail to have a good effect. He urged also the establishment of a Medical Board to hear and decide upon any appeals or complaints against the professional conduct of any practitioner in the Colony, especially if the complaints were of such a nature as to imply any serious culpability or dereliction of duty whereby the health or life of any patient might have been endangered or lost. He instanced the analogy of disciplinary action taken against the master of a wrecked vessel if, in fact, he was deemed responsible, either from incompetence or reckless conduct, for any resulting loss of life or property. He then continued:

An act of legislature has we understand been passed in Van Diemen's Land to this effect: and since its introduction lots of superfluous spawn formerly attached to this profession in that colony have been swarming to this more liberal and extensive field of practice. Men of cracked or rotten reputation—convict doctors and quacks of all casts and characters are permitted to pour into this general receptacle for indiscriminate refuse. And if this be the case, then is it not a matter for serious apprehension, lest a continued influx of such questionable and disreputable characters should be suffered to practise in this colony—thus literally to prey on the vitals of Society and bring dishonour on the profession. We do not mean to say that a medical man who may have come to the colony as a convict

should not be tolerated in practice, especially if the sentence under which he was transported implied no flagrant breach of principle or moral delinquency but we hold that it is in the abstract as indecorous and repugnant to right feeling, as well as incompatible with due respect for the profession, to permit a class of men on whom the laws of their country have branded the indelible stamp of moral infamy and dishonour to practice in a profession which of all others requires in many cases the purest honour and most unsuspected faith.

The Colonist was one of several newspapers established by the Reverend Dr. John Dunmore Lang, who founded Scots Church, Sydney—a fiery ecclesiastic, who was keenly interested in politics, education, immigration and all other public questions. It first appeared on January 1, 1835, and endured until 1840. Dr. Lang was, on the whole, on good terms with Bland, and as regards this particular issue which attacked Bland (March 14, 1838) he stated that he had not contributed a single line to it, but that the editor, Mr. McEachern, was entirely responsible. But William Bland had some good friends of the highest professional standing in the community and they hastened to his rescue with the following letter (dated March 15, 1838), which appeared in *The Colonist* on March 17, 1838, and also in the *Sydney Herald* on March 22, 1838:

Sir. Our attention has been directed to an anonymous communication in your paper of yesterday respecting an operation which was performed at the Benevolent Asylum some time since and at which we were present.

As this letter appears intended to convey a very erroneous and unfavourable impression as to the nature of the above operation and the circumstances attending it and as you have thought proper to found upon it some lengthened observations of the most unfounded, injurious, and illiberal description we feel ourselves called upon in justice to the gentleman who operated, to vindicate him against the unjust and apparently malicious aspersions aimed at his professional reputation.

The operation of tying the Arteria Innominata in cases of Subclavian Aneurism, is one of comparatively recent introduction, and instead of being of the trivial character insinuated by your Correspondent, it is confessedly one of the most difficult and protracted of Surgery. The operation has not been performed more than five or six times, and in one case where it was attempted by Professor Colles of Dublin, a highly distinguished anatomist and surgeon, after repeated and ineffectual endeavours to apply the ligature, that gentleman was under the painful necessity of abandoning the patient to the intense suffering and inevitable death consequent upon this disease when unarrested by the hand of Art.

We believe that Mr. Bland is the only Surgeon who has performed this important operation more than once, and although neither of the cases where he operated was followed by recovery, the same fatal result has attended every other instance where the operation has been hitherto performed. It is the utter hopelessness of the disease, the dreadful suffering attending it, and the absolute impossibility of affording relief by any other medical means, that has led Surgeons to feel themselves justified in attempting it.

In the case of Professor Lizars which is so prominently contrasted with that at the Asylum, your Correspondent has not had the honesty to communicate the important fact that the patient died on the 21st day after the operation. We decline to make any comment on this uncandid and disingenuous concealment on the part of your anonymous correspondent.

In the case at the Asylum the operation was not performed until after the most mature deliberation and a full explanation of the risks attending it to the patient who expressed his anxiety to avail himself of this, the only chance it afforded him of life. During the whole of the operation, which called for continuous physical exertion on the part of the operator, and which demanded the constant exercise of the most minute scientific and anatomical knowledge, Mr. Bland maintained the greatest degree of coolness, of deliberation and of freedom from embarrassment. The cause of protraction was owing to the great depth of the parts through which the incisions had to be made, and the express intention of the operator himself of guarding against the exhaustion likely to ensue from the necessarily tedious nature of

the operation. The extremely vital and important nature of the parts through which the incisions had to be carried render the operation itself eminently hazardous, although it is admitted that some surgeons have, for the sake of public exhibition, achieved it in comparatively short periods. So far from the extreme suffering however, so graphically depicted in the communication referred to, being perceived, in the present instance the patient conversed during a great part of the time, and facetiously remarked in reply to some observation made to him that he appeared to be less fatigued than the operator and the bystanders.

So far from any concealment having been effected regarding the case, we beg to say that the operation was performed in the presence of ourselves, of Alexander Neil Esq., Surgeon R.N., the House Surgeon of the Asylum and the medical gentleman under whose care the patient had formerly been. A daily record of the case, preserved at the Asylum, is accessible to anyone caring to consult it: and a full and explicit account of the operation has, for the benefit of Science, we believe, already been transmitted to Europe for insertion in the Medical Journals.

In conclusion, Mr. Editor, we cannot but express our strong sense of reprehension at the introduction, in your columns, of a letter by an anonymous correspondent, calculated to present garbled and unfounded Statements concerning which the public generally cannot possibly be competent judges. Nor do we feel less regret at the tone and spirit pervading the editorial remarks, with which the above communication is followed. We cannot but regard it as a poor compensation for the gratuitous labour, the continued fatigue, and responsibility of the Medical Officer of a charitable Institution—an enlightened and respectable practitioner—if exparte Statements (probably emanating from an obscure and incompetent rival) are allowed to be brought forward, impugning his professional conduct or character.

We have the honour to be Sir,

Your Obedient Servants,

George Bennett,

Member of the Royal College of Surgeons.

F. L. Wallace M.D.

C. Nicholson M.D.

Following this letter the editor of *The Colonist* was at much pains to deny that he was actuated by animus, prejudice or malice. He said he did not know who the author was, but that he had submitted the letter to "a responsible person", who had approved of it. Having been only three and a half months in the colony he knew nothing of the private history or professional character of the medical officers in it. His demand for a Medical Board or Commission was written in general terms without any particular application. He disowned the slightest malice or personal feeling and was not disposed to withdraw or retract one single word of his comment.

In *The Colonist* of March 24, 1838, appeared a letter from "A Surgeon", who asked *inter alia* whether there was, anywhere else in the annals of modern surgery, any record of an operation occupying such protracted time as five hours and a half. Why, he asked, should the case be published in the medical journals of Europe rather than more appropriately the journals of Sydney, "the Spot where this extraordinary case took place"; if incisions made had been sufficiently free, it would have saved a great deal of "poking and groping". The more quickly and dexterously an operation was performed, the more likely was it to ensure a recovery for the unfortunate patient, the more creditable should it be for the operator himself, and the more should it accord with the benevolent spirit of modern and scientific surgery.

And in the same issue, as proof that the operation was "No Bagatelle", "A Witness of the Operation" quoted Sir Astley Cooper: "Mr. Mote of New York has put a ligature on this vessel and for a time the patient appeared to be doing well but he afterwards died. The operation did him much credit: few would have dared to perform it: and those who might have dared would not have known how. Dr. Mote is an excellent anatomist and an industrious man."

It seemed, however, that no finality would be reached in the discussion without a contribution from the surgeon himself, and accordingly in *The Colonist* of March 28, 1838, William Bland, writing to the editor, pointed out for general information that operations of this description varied greatly in difficulty, in that the comparatively easy operation of tying the femoral artery for popliteal aneurysm was at first so unsuccessful that even eminent surgeons preferred amputation of the limb as an alternative. It was not surprising, then, that ligation of the *arteria innominata*, so much more difficult and dangerous, had in its early history been equally unfortunate. He had performed several operations upon the larger arteries, including the subclavian and external iliac, and invariably with success. Having read of ligation of the *arteria innominata* elsewhere, he was encouraged to try it in 1832 in a case in which almost immediate death and dangerous operation were the only two alternatives; that having been explained to the patient, he firmly desired operation; incision was free, exposure was easy, but ligation was difficult. The patient died on the eighteenth day from erosion of the ligature into the vessel, and a successful issue was thus considered practicable although this second case was very formidable. Bland went on:

The shoulder and the chest generally, on the diseased side, at the time it came under my care, had been displaced by an elevation of upwards of two inches: the upper part of the chest also was flattened, and as was discovered after death, the first two ribs, and the collar bone in some parts almost destroyed by the dreadful pulsation of the tumour: and to add to the difficulty of the operation the artery was found to lie at a greater depth than usual, while the free incised external openings which were made in the former case were rendered impracticable from the encroachment of the tumour and upon its attachment to the sternal extremity of the clavicle.

Regarding the operation, I beg to observe that the primary incisions having been made with as much rapidity as was either practicable or safe, unfortunately its interior stages were found involved in embarrassing difficulties. The tissues in immediate contact with the artery that was to be tied having participated in some degree in the morbid actions that had been going on in its vicinity, and which parts had in consequence become thickened, somewhat indurated, massed together and comparatively immovable. This part of the operation had to be performed with the nail of the finger or the blunt end of a scalpel or similar instrument and which in the ordinary state of the parts is sufficient. No sharpened instrument can be used with the least regard for the safety of the patient.

The difficulty in which I was involved was immediately seen and explained by me to the professional gentlemen near me. The alternatives were quite clear. I had either to abandon the operation after having commenced it, as Professor Colles had been induced to do and most probably from a similar cause or most cautiously persevere. I preferred the latter and after much fatiguing and anxious exertion (but which on account of the patient, as well as the operator, it was indispensable should be interrupted by frequent rest) had the good fortune to succeed in passing a ligature under the vessel with the very instrument which I had before invented. But how to complete the operation by drawing forth the end of the ligature previously to its being tied in this particular case.

Hic fuit labor, hoc opus.

The patent needle of Mr. Weiss was tried in vain, my own had not at this time been improved so as to obviate this difficulty. Time and repeated endeavours however at length enabled me to surmount this difficulty also, and I have since by an improvement in my own instrument taken such steps as will render its recurrence rare if not impossible. I have now only to add that all pulsations ceased in the tumour the moment the ligature was tied. The patient was immediately relieved from many troublesome symptoms and the fatal issue of the case (on the eighth day from the operation) was found to proceed from the diseased state of the artery, in which a circular ulcerated opening (capable of admitting a small quill), situate on the upper surface of the vessel about half an inch from the ligature, on the side of it next the heart was discovered on dissection. The *arteria innominata* too was discoloured, thickened and somewhat indurated through its

whole extent nor was the aorta free from diseased appearance. The lung notwithstanding bleeding and the other means adopted for its prevention had suffered not only from former but recent inflammation.

The ligature was found firmly attached to the artery precisely on the spot where it had been determined it should be tied, and the work of obliteration of the calibre of the diseased vessel, the so much desired object of the operation had already commenced and had made considerable progress at the time of the patient's death. From the above statement it will, I trust, appear that the operation viewed abstractedly had been completely successful, that its tediousness arose from the peculiar circumstances of the case, and the imperfection of the only instrument in use for its performance at the time it was performed, while it is no less evident that the death of the patient arose entirely from causes over which I could have no possible control and for which no blame could attach; and further that from the additional stock of experience derived from this operation and which as on the former occasion will be laid before the medical public—as well as the considerable improvement now made in one of the instruments required not only for that operation but for passing ligatures round large and deeprooted vessels generally—the operation has not been performed in vain.

I gladly here close this long, but unavoidably long, explanation—by performing the agreeable duty of expressing my sense of obligation both for the able assistance which I received during the operation itself from my medical colleagues at the Asylum, Doctors Wallace and Nicholson, as well as for the scientific and full explanation which those gentlemen in conjunction with Surgeon Bennet have done me the favour to publish.

After this the editor made the "*amende honorable*" in most apologetic terms, stating that "so temperate, so dignified and so candid a communication from Dr. Bland instead of tarnishing his honour or blanching the fresh luxuriance of his laurels will stand on record as a highly interesting and useful document in science and afford a memorable proof of the adventurous skill and undaunted perseverance of an undoubtedly eminent and meritorious surgeon and we beg to assure Dr. Bland and all concerned in the operation that we for our part have been actuated by no personal feeling or prejudice in any agitation which we may have been the means of exciting in this case. If in aught therefore we have unwittingly wounded the feelings of anyone undeserving of such uncourteous treatment we will not we trust be suspected of malicious motives at least".

The establishment of the first Medical Board in New South Wales was notified in the *Government Gazette* of December 12, 1838. Its constitution was as follows: President, F. V. Thompson, Deputy Inspector-General of Hospitals; members, Dr. Dobie, K.N., Dr. Robertson, Dr. Nicholson, Dr. Wallace.

It is unlikely, however, that this action was in any way expedited by the recommendation of *The Colonist*.

Acknowledgement.

I am indebted to the staff of the Mitchell Library, Sydney, for their courteous assistance in making available the various journals from which this story has been compiled.

THE SIGNIFICANCE OF SEX DIFFERENCES IN SOMATIC CELLS.¹

By H. F. BETTINGER,

The Royal Women's Hospital, Melbourne.

SINCE 1949, Barr and his associates have published a series of papers in which they report that it is possible to distinguish, in the structure of the nucleus of many somatic cells, differences which allow the observer to state whether

such a nucleus comes from the tissues of a male or of a female animal.

It is well known that a resting nucleus contains a chromatin network in which the individual chromosomes cannot be discerned. It is only at mitosis that the individual chromosomes become visible and can be distinguished by their size and shape. Amongst the chromosomes the sex chromosome X is usually one of the largest, while the Y chromosome belongs to the very small ones. Barr and his co-workers have suggested that the X chromosome pair of a female forms, partly on account of size, partly for other unknown reasons, a unit too large to blend properly into the chromatin network when the nucleus comes to rest. The much smaller XY pair of the male has no such difficulties. These workers therefore state that one can see in many of the nuclei a small chromatin clump within the chromatin network, usually at the periphery of the nucleus directly under, or a short distance from, the nuclear membrane, which represents this pair of X chromosomes. This special structure was first seen in the nerve cell of the cat, but, since then, it has been shown that similar structures are present in many somatic nuclei in various species of animals and in different tissues. Not in all tissues can these little clumps be seen with ease. The tissues most suitable for their demonstration vary from species to species, and in man it seems rather fortunate that the squamous epithelium of the skin is a tissue in which these differences can be easily seen. Figures I to III illustrate the appearance of these structures in the epithelial cells of human skin.

About a year ago, Davidson and Smith reported that a structure corresponding to the pair of X chromosomes of the female could also be identified in human leucocytes. The nucleus of the mature neutrophilic leucocyte consists, as is well known, of a number of lobes which are connected by fine threads, and Davidson and Smith reported that in female leucocytes a small extra lobe could be seen, which had a characteristic form and shape compared by them to a drum-stick. Figures IV to VI illustrate these drumsticks.

The little clumps in the epithelial cells of the skin and the drumsticks in the leucocytes are not seen in every cell. Sometimes one has to search for them for quite a while, especially if the preparations are not of first-class quality; moreover, it cannot be said that nothing resembling these structures is ever seen in cells from a male individual. But the rate of occurrence of these structures in both sexes is so different that there is, with a little experience, no difficulty in distinguishing whether a preparation comes from a male or a female individual.

As a contribution to our knowledge these discoveries are certainly valuable, and they must provide those who are concerned with the study of the structure and composition of the nucleus at various phases with a good many problems. An interesting field has already been opened up by those workers who have examined the epithelial nuclei of squamous epithelium in teratomata. It has been found that in female individuals the nuclei of the teratoma show the expected female pattern; but in about half of the male individuals the tumours show the male nuclear pattern, while in the other half the female pattern is present. The statement that a certain percentage of patients with Turner's syndrome have a male nuclear structure in their skin epithelium is also of great theoretical interest; but a discussion of these observations is beyond the scope of this paper.

It is, however, a very different question whether these discoveries have any immediate practical value, and if so, what use can be made of them. Several suggestions have been made in the original papers and in others, but I feel very doubtful about their soundness, and this is one of the main reasons for writing this paper.

It is quite possible that, as Davidson and Smith suggested, such determination of sex would be of help in medico-legal cases—when, for example, only parts of a dismembered body are discovered, it may be useful to know whether these parts come from a male or a female body. However, one will have to take into account that such

¹Read at a meeting of the Section of Pathology, Bacteriology, Biochemistry and Forensic Medicine, Australasian Medical Congress (British Medical Association), Ninth Session, Sydney, August 20 to 27, 1955.

discoveries are usually not made until a considerable time after death, and as yet there have been no investigations to show whether the findings in these cells are still valid when post-mortem changes have occurred to a greater or lesser degree.

However, I view with grave concern the suggestions as to practical application that have been made by Barr and his associates. It is common knowledge that there are a small number of people in whom sex determination and sex differentiation are not so clear-cut as in the vast majority of people, and who are therefore designated as hermaphrodites or intersexes. I have discussed the problem of intersexuality at length on previous occasions and can here only summarize my views.

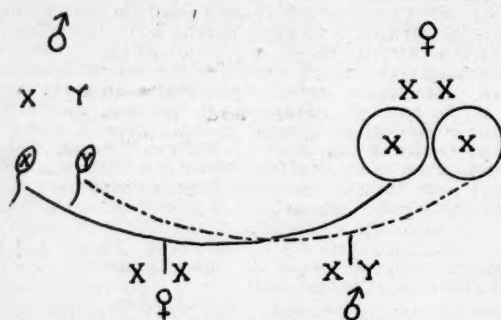


FIGURE VII.

In the last hundred years, the belief has grown up that if the microscopic structure of the gonads of such individuals could be ascertained, then their "true" sex would be known, and they could be given unequivocal advice as to what role in life, and what place in society, they would have to assume. I have previously quoted from

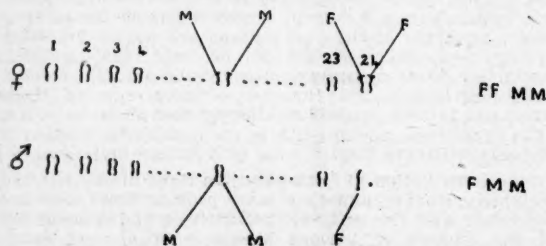


FIGURE VIII.

the literature, and from my own experience, examples which illustrate to what disastrous results this utter disregard for the personality of the individual must necessarily lead. It has been very gratifying to see that in the last ten or twenty years there has been a gradual change in the attitude of the medical profession towards the management of such individuals, and that the general rule "determine the psychological sex and adjust the physical features by medical and surgical means accordingly", has become more and more widely adopted. Now, this most welcome progress is in serious danger of coming to an abrupt halt, or even of being reversed. In the past, a major operation was, after all, necessary to determine the nature of the gonads, and often enough the patients or their parents did not agree to such an operation; now all seems to be so much easier. All that has to be done is to take a skin biopsy, or even just to make a blood film, and it will be known whether this individual has two "X" chromosomes or an "X" and a "Y", and action can be taken accordingly. It seems extremely scientific to tell an individual who has been brought up as a woman and is living as a woman,

that she has an "XY" constitution and should change over and go on living as a male, regardless of consequences. This, to my mind, is pseudoscience of the worst kind, and why I am convinced of this, the following diagrams will illustrate.

The first diagram (Figure VII) represents the mechanism of sex determination as it is usually taught to medical students. All the ova, but only half the spermatozoa, contain an X chromosome. According to the kind of spermatozoon that achieves fertilization, the zygote will have one or two X-chromosomes and a male or female individual will develop accordingly.

At this stage medical text-books usually let the matter rest, and they do not even touch the vital question how

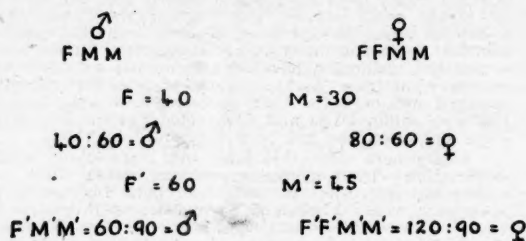


FIGURE IX.

one set of genes can produce something quite different from what two sets of the same genes do. This attitude is most remarkable because the answer to the question is quite well known to biologists. As Figure VIII illustrates, the X chromosome contains factors for femaleness; factors for maleness are not contained in the Y chromosomes, but either they are contained in one of the other chromosomes (autosomes) or, according to another theory, the whole set of autosomes acts to determine maleness. The formulae XY and XX become, therefore, replaced by FMM and

$$FMM = 60:60 = \text{♂} \quad \quad FFMM' = 80:75 = \text{♀}$$

FIGURE X.

FFMM, or in another set of shorthand symbols 1X2A and 2X2A. From this it follows that the value for F must be greater than that for M, but smaller than that for 2M, or that the value for X must be greater than that for A, but smaller than that for 2A.

In some of the experimental animals, the actual ratios of these values are quite well known, but in Figure IX arbitrary figures have been chosen. From the examples given it will be quite clear that sex determination will occur in the usual fashion so long as the differences between the values for F and M are of a sufficient order.

From Figure X it can be seen what is likely to happen when this is not the case. For example, if mating takes place between individuals of the same species, but with a different set of F's and M's, cases must arise in which the ratio is not great enough for clear-cut sex determination to occur and intersexuality must result. This is not just speculation. Goldschmidt has actually, by crossing different races of *Lymantria dispar*, obtained all degrees of intersexuality at will. Work with *Drosophila* supports the contention that it is not just the number of X chromosomes which is responsible for sex determination, but the balance of the factors contained in them with those in the other chromosomes. In *Drosophila*, it is possible to obtain individuals with genetic formulae other than the usual 1X2A and 2X2A. A fly of the formula 1X1A is a female, a 2X4A is a male, and individuals with a genetic constitution of 2X3A or 3X4A are intersexes.

This is clearly a very incomplete summary of a most interesting and most intricate biological phenomenon;

however, the essential point in all this is that sex is determined by a kind of genic equilibrium. Usually this equilibrium is adjusted in such a way that a clear-cut differentiation into a male or female individual occurs; but there are cases in which the preponderance of male or female genic factors is not sufficiently great to ensure such a clear-cut differentiation. Such individuals will show a mixture of features, and it is often the case that the psychological and the physical development will not proceed in the same direction. If there are discrepancies between physical and psychological features, it is the psychological ones that are of the greater importance to human individuals; and there really ought to be no doubt at all that these should be made the basis for the management of such people. This fundamental idea has not been changed in the slightest by the new discoveries. Just as we had become prepared to forget about ovaries and testes when our professional advice was sought regarding such patients, so we should be ready in future to forget about their "X's" and "Y's".

Summary.

A short account is given of sex differences in somatic cells as originally described by Barr and his co-workers, and by Davidson and Smith. The implications which these discoveries may have in various fields of practical medicine are discussed, and the conclusion is reached that they should have no bearing on the management of cases of intersexuality.

The factors on which this conclusion rests are given in some detail.

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Addendum.

Some further relevant information has come to hand since this paper was read at Congress.

The first is a technical point. It has been reported—and has been confirmed in our laboratories—that the characteristic chromatin clumps in the squamous epithelial cells can also be seen in smears of the buccal or vaginal mucosa. We have, in addition, seen them in sections of the squamous epithelium of the *cervix uteri*.

Secondly, there are now quite a number of reports which indicate that the male nuclear pattern predominates in cases of Turner's syndrome.

I cannot discuss here the theoretical conclusions that have been drawn from these observations; but a practical point arises. It has been suggested that in cases of suspected ovarian (or, perhaps better, gonadal) agenesis in apparently female individuals, the observation of a male nuclear pattern would be sufficient to establish the diagnosis and make a laparotomy unnecessary.

It is, for the general thesis of this paper, highly significant that in all these reports there is never a suggestion that these women should be informed of their "true" sex and advised to proceed to live as males. On the contrary, therapy with female sex hormones is usually advised in order to bring about the development of the female secondary sex characteristics. If the pragmatic sex is recognized in these cases in preference to the "true" one, there is no reason whatever why the same principle should not be applied to cases of intersexuality.

THE UPTAKE OF RADIOIODINE BY THE THYROID CELLS USING NUCLEAR EMULSION.¹

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THE earliest attempts to visualize radioiodine in the thyroid by photographic methods were made by Hamilton and Soley, of California, in 1940, using a short-lived isotope, I^{130} (half-life 12.6 hours), prepared by the bombardment of tellurium in the cyclotron at Berkeley. Later another longer-lived isotope, I^{131} (half-life eight days), was separated from the fission products of uranium. Its longer half-life makes it the more convenient tool, and it is now used in almost all tracer studies.

At first the histological preparations to be photographed were mounted on glass slides and placed in contact with the sensitive emulsion on a lantern slide or celluloid film—so-called "contact auto-radiography". It was subsequently found that the definition could be improved by coating the preparation with the liquefied emulsion and allowing it to dry (Leblond and Gross, 1948). Rat thyroids were used, and the radioactive material was demonstrated in the colloid within the follicles.

Methods.

Twenty-four hours prior to operation, a tracer dose of 150 microcuries of I^{131} was given orally in aqueous solution. Small blocks of thyroid gland removed surgically were placed immediately in 70% alcohol and allowed to undergo fixation for twenty-four hours. After fixation, the tissue was dehydrated in several changes of absolute alcohol for twelve hours, left overnight in cedarwood oil, cleared in xylol for one hour, and mounted in paraffin.

Sections were made 3μ to 4μ in thickness, placed on specially prepared slides, cleared with xylene, dipped in 0.5% celloidin solution and allowed to dry.

Ilford G5 nuclear emulsion was liquefied by warmth and applied to the slides with a camel-hair brush and allowed to dry.

The slides were set aside in a lead-shielded box for the required time (forty-eight hours) and then developed and fixed in the usual way. After thorough washing, the sections were stained lightly with hematoxylin and eosin, mounted in XAM and covered with a thin coverslip. Microphotographs were taken with the low-power and high-power objectives.

Results and Discussion.

The foregoing method combines the following advances in technique:

1. The minute amount of radioiodine employed (two microcuries per kilogram of body weight) was sufficient to give a satisfactory autograph whilst not obscuring finer details by overexposure.
2. Alcohol alone was used as a fixative, and solutions containing mercury or formalin, such as Bouin's, were avoided, since they interfere with the processing of the emulsion (Doniach and Pelc, 1948).
3. Thin sections, 3μ to 4μ in thickness, were used to give a single cell layer of the epithelium lining the vesicles.
4. The use of sensitive nuclear emulsion, with its high content of silver halides, enables a greater degree of accuracy in localization of the radioactive material. A short exposure time and the lead-shielded box decrease the amount of background fog.
5. By incorporating the section and the emulsion on the one slide, perfect apposition between the emulsion layer and the histological section is obtained; this is of great value in interpreting the autoradiographs after processing is complete.

¹This work was supported by the Sir Edward Hallstrom Research Fund.

We have thus been able to demonstrate the selective concentration of I^{131} in the epithelial cells of the thyroid follicle in man. Figures I and II are from an illustrative case and were prepared by the foregoing method. The black dots indicate the presence of radioactive material emitting β particles or electrons, which cause ionization of the overlying photographic emulsion. Although there is some radiiodine in the colloid, there is a much greater concentration in the cells.

Figure II shows the I^{131} to be located at the end of twenty-four hours mainly in the apical areas of the follicular cells. Because of previous fixation of the tissue in spirit, this I^{131} must be protein-bound, which suggests that both iodine trapping and protein binding occur primarily in the thyroid epithelium and not in the colloid.

Doniach and Pelc (1948) introduced a new stripping film method and separated the emulsion after exposure, before it was processed. Using rats, they found the I^{131} accumulated in the colloid and not in the cells lining the vesicles. They used tracer doses comparable with our own, but in the rat transfer of the isotope to the colloid is faster than in humans.

Pitt-Rivers and Trotter (1953) also showed that in the rat's thyroid the iodine rapidly passed into the colloid, and they were unable to demonstrate any radioactivity in the cells. Their animals had been prepared with thiouracil for two weeks, and this induced hyperplasia of the thyroid glands. Moreover, they gave the rats a relatively enormous dose of I^{131} , calculated on the basis of body weight.

Wollman and Zwilling (1953) observed that the accumulation of I^{131} in the chick embryo occurred in the epithelial cells of the thyroid *Anlage* prior to the appearance of the colloid. However, Wollman and Wodinsky (1955) were unable to demonstrate the ring forms of autograph in the mouse's thyroid and concluded that the site of protein-binding was probably in the colloid. They used doses of I^{131} varying from five to 600 microcuries, the average weight of the mice being 30 grammes.

Nadler (1953) used the grain-count method to estimate the amount of radioisotope in the colloid, and Nadler, Leblond and Bogoroch (1954) determined that the rate of iodine uptake was a function of the size of the follicles, being more rapid in the smaller follicles. The latter exhibit a greater surface area per unit volume, and this is proportional to the total cell volume of the follicles. Nadler and Leblond (1955) were unable to demonstrate the iodine in the cells and concluded that the site of iodide accumulation and organic binding was in the colloid.

We suggest, however, that their failure to demonstrate intracellular iodine may be due to the relatively large doses of I^{131} used in their experiments. The speed of turnover of iodine is also directly related to follicle size; so that much faster transfer of hormone to the lumen may occur in the small follicles of the rat than in those of man.

Summary.

By the use of a special electron-sensitive emulsion, radioactive iodine is demonstrable in high concentration in the epithelial cells of the human thyroid gland, after the administration of minimal amounts of I^{131} .

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THE RADIOSENSITIVITY OF GRANULOSA-CELL TUMOUR OF THE OVARY.

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THE first description of the pathological appearance of a granulosa-cell tumour was due to Rokitansky in 1855. However, it was not until 1932 that the theca-cell tumour was described by Löffler and Priesel. The tumours are not common, and Diddle (1952), in an exhaustive review of the literature of these tumours, noted 926 granulosa-cell and 263 theca-cell tumours, and adds 35 cases of his own. In large series of cases, oestrogenic tumours represent from 1% to 2% of all ovarian tumours, the ratio of granulosa-cell to theca-cell tumours being nearly four to one.

Few authorities now give support to the theory of Meyer that these tumours originate in unused granulosa-cell rests left during development. They prefer the suggestion of Novak that both granulosa-cell and theca-cell tumours are derived from the primitive mesenchyme, in which epithelial or thecal differentiation has occurred to varying degrees. For this reason, mixture of the two types of tumour may be seen in the same ovary. Maturation in the tumour tissue may proceed, just as it does in the normal follicle. This will be followed by luteinization, and finally by fibrosis. On this basis, fibroma of the ovary also becomes related to these tumours.

It is of interest to note that in experimental mice, the tumours have been induced by general exposure to small doses of X rays (Furth and Butterworth, 1936). X rays at first depress and later stimulate the growth of granulosa cells, leading to tumour formation. It has, therefore, been suggested that irradiation may be a factor in the development of these tumours in human beings, but there is no clinical confirmation of this.

Tissue Sensitivity to Radiation.

The number of cases reported in the literature is too small to allow definite conclusions to be drawn as to the radio-sensitivity of granulosa-cell tumours, as most of these tumours are removed surgically. In addition, the radio-therapeutic treatment recorded has been, in most cases, by unstandardized dosage. The evidence for the radio-sensitive nature of the tumour is as follows:

1. One would expect, in view of the radio-sensitivity of the ovarian follicle, and of granulosa-cell tissue in general, that granulosa-cell tumours would be radio-sensitive. (It is generally accepted that a tumour of a specific tissue is more sensitive than the parent tissue.) In addition, when a tumour takes on malignant activity, actively dividing cells should be more radio-sensitive than resting cells.
2. The relief of uterine bleeding in these cases by low doses of radiation to the ovarian tumour is reported by many writers, and suggests radio-sensitivity.
3. The only cases reported in the literature with planned radiotherapy to full dosage were those of Moreton and Leddy (1948), and long survivals were noted in the three inoperable cases.
4. There are several reports in the literature, in addition to the case described below, of excellent response by metastatic growth to X-ray therapy. The undoubted sensitivity of metastases from granulosa-cell tumours to comparatively low dosage of radiation should suggest that the primary tumour is sensitive. (Metastases in general are of the same or less sensitivity than the primary growth.)

Report of a Case.

The patient, aged forty-five years, attended with a history of the removal of both ovaries twelve years previously. The section was reported as showing granulosa-cell tumour of the ovary. In 1949 total hysterectomy was carried out, followed by X-ray therapy (approximately 1200r tumour dose). In July, 1950, a radiograph showed metastases in the right lung, and their presence was confirmed by thoracotomy (Figure I).

In December, 1951, rapid swelling of the abdomen developed associated with abdominal pain and weakness. The patient showed wasting, moderate ascites, oedema of the sacrum and labia, a fixed tumour in the left lower quadrant of the abdomen and a haemoglobin level of 48%. Radiographs showed multiple secondary deposits in the right lung and a small right pleural effusion, and lung needle biopsy confirmed the presence of a granulosa-cell tumour. A course of X-ray therapy to the abdomen was given (approximately 500r tumour dose), and paracentesis was carried out, blood-stained fluid being obtained. A month later, a course of parahydroxypropionophenone was started. Within a month relief in abdominal symptoms was noted, and a radiograph of the chest showed some regression in the effusion and lung opacities.

In May, 1952, a new nodule appeared in the abdominal scar, and increasing dyspnoea developed. The haemoglobin level was 37% and the serum protein level 4.75 grammes per centum. The liver was enlarged four inches below the costal margin, but was smooth and soft, and the condition was thought to be due to protein loss. A diet of high protein and vitamin content was therefore started and followed by a course of X-ray therapy to the abdomen (to a tumour dose of 1820r in twenty-four days), in an attempt to decrease the ascitic outpouring. These measures resulted in a considerable decrease in the size of the liver and in the abdominal girth, although intermittent diarrhoea persisted. Parahydroxypropionophenone therapy was discontinued. In October, 1952, a recurrence of abdominal symptoms and dyspnoea developed. The haemoglobin level was 52% and the serum protein level 7.4 grammes per centum. The liver was again enlarged four inches below the costal margin. X-ray therapy to the right side of the chest (1500r tumour dose in thirty days), associated with blood transfusions, led to gradual improvement in her condition, and some decrease in the lung infiltration.

In February, 1953, after repeated attacks of right-sided pain, a radiograph showed increase in the lung metastases (Figure II). A further course of X-ray therapy to the right side of the chest was given (1500r tumour dose in twenty-five days). This led to rapid and remarkable regression in the lung opacities (Figure III) and improvement in her general condition, but considerable enlargement of the liver still persisted.

In September, 1953, a recurrence of abdominal symptoms was treated by X-ray therapy to the abdomen (2000r tumour dose in twenty-seven days). Wasting and dehydration were counteracted by a protein-rich diet.

In July, 1954, a recurrence of pleuritic pains in the right side of the chest was treated by X-ray therapy (1500r tumour dose in twenty-five days). This led to relief of pain after the second treatment.

In January, 1955, wasting again developed, and the liver was found considerably enlarged. A protein-rich diet was reinstituted (Figure IV).

In April, 1955, the patient developed recurrence of abdominal distension with anaemia (haemoglobin level, 46%) and anuria (blood urea content 183 milligrammes per centum), and died in May, 1955, before further X-ray therapy could be started.

Post-mortem examination revealed multiple deposits of tumour through the right lung and diffuse right pleural adhesions. There was a huge necrotic haemorrhagic pelvic mass causing bilateral ureteric obstruction with hydronephrosis. There were multiple secondary deposits throughout the peritoneal cavity and on the diaphragmatic surface of the liver, but without any evidence of liver invasion.

Discussion.

In a review of the literature, it appears that most authorities advise total hysterectomy and bilateral salpingo-oophorectomy in older patients with this tumour, because clinical evidence of malignancy is not always correlated with a histological picture of malignancy. For younger patients, a less radical procedure is advised if the tumour is well encapsulated. As far as radical radiation

therapy in the early case is concerned, there is no report in the available literature of a planned technique aiming at truly cancericidal dosage to the full extent of the tumour. The reports in the available literature are analysed according to whether irradiation was given primarily, post-operatively or to metastases.

Primary Irradiation.

Traut and Marchetti (1940) report two cases in which the use of a radium applicator in the uterus for irregular bleeding was followed by temporary amenorrhoea, but was followed within two years by the discovery of a granulosa-cell tumour. Similar cases were reported by Schulze (1933), by Studdiford (1937), by Moreton and Leddy (1948), and by Burslem *et alii* (1954). As Moreton and Leddy point out, it is obvious that an ovarian tumour cannot be irradiated homogeneously from a radium source in the uterus. The furthest point of the tumour receives a much smaller dose than the nearer, especially in the case of large ovarian tumours. However, such therapy could be used in conjunction with X-ray therapy to build up a local high dose, as is done in the case of the relatively radio-resistant adenocarcinoma of the ovary.

Such a method was used by Moreton and Leddy (1948), who reported three patients with inoperable extensions from granulosa-cell tumours who were treated by a planned radium technique, by X-ray therapy or by a combination of the two. They survived respectively for sixteen, nine and nine years after treatment.

Treatment is specified in milligramme-hours of radium and skin dosage of X rays, so that the tumour dosage cannot be specified. These authors conclude that low "menopausal" doses of irradiation will lead to temporary disappearance of symptoms from granulosa-cell tumours, especially by depressing the oestrin secretory property of the granulosa cells. However, later new cells develop and symptoms redevelop. Thus a higher dosage is necessary although the tumour is moderately radio-sensitive (unlike most adenocarcinoma of the ovary). The X-ray technique used the following factors: 200 kilovolts, 0.75 millimetre of copper and 1.0 millimetre of aluminium filtration, and a focal skin distance of 50 F.S.D. The skin dose was 540r (in air) to each of two anterior and two posterior pelvic fields. (The use of extra fields or a higher dose is recommended in the case of a large patient.) Therapy is repeated after two or three months, and again later if there are signs of recurrence. It is suggested also that if the tumour ruptures, the whole abdomen must be treated.

Post-Operative Irradiation.

With regard to the value of post-operative irradiation, it appears that about 15% of Diddle's series of patients received irradiation, usually in conjunction with surgery. There is not sufficient statistical evidence to decide on its efficacy, as a controlled comparison is essential; but Schulze (1939) concludes that when complete surgical removal is impossible, post-operative X-ray therapy may increase the chance of cure. Traut and Marchetti (1940) mention six patients with malignant granulosa-cell tumour who received X-ray therapy post-operatively (to an unspecified dose), of whom only one survived for five years. Duckett *et alii* (1953) report two cases of ten-year survival out of four patients given X-ray therapy post-operatively.

Moreton and Leddy (1948) report on seven patients given X-ray therapy post-operatively, and of these five were alive ten or more years after operation. On the other hand, Hodgson *et alii* (1945), in a study of 62 cases, conclude that post-operative radiotherapy is not indicated, but that pre-operative irradiation may lead to temporary regression of the tumour.

Irradiation of Metastases.

With regard to the X-ray therapy of metastases for granulosa-cell tumour, McDonough (1937) reports a case in which a metastasis in an old abdominal scar was treated by X-ray therapy, and disappeared. The dose is specified as "10 sessions each 200r". Kleine (1933) described the treatment of a patient with repeated

abdominal and mediastinal metastatic deposits from granulosa-cell tumour. All disappeared with small doses (1 H.E.D. single session to 2 H.E.D. in nine days by anterior and posterior ports). The patient was still alive and working eight years after the first course of X-ray therapy.

Haines and Jackson (1950) note that metastatic deposits may occur after many years (after thirteen and seven years respectively in the groin and neck). They report that such metastases are radio-sensitive. There appears to be good evidence, therefore, of the radio-sensitive nature of the metastatic growth, and this is shown in the preceding case report.

This case is unusual in several respects. Metastasis to the lungs is recorded in only seven cases out of 926 cases of granulosa-cell tumour in the literature reviewed by Diddle (1952). Secondly, there is only one parallel case in the literature of repeated and prolonged response of metastases from this disease to X-ray therapy, and that is the one reported by Kleine (1933) previously referred to, whose patient was alive and working eight years after her first course of therapy. Our case is interesting in that the lung metastases were confirmed histologically on two occasions. Thirdly, there is the feature of decrease in size of the lung metastases after a course of parahydroxypropio-phenone—a phenomenon paralleled in the case reported by Perrault *et alii* (1949). Their case was one of chorionepithelioma with lung metastases, in which the lung opacities decreased in size after the administration of parahydroxy propio-phenone.

Summary.

A case of granulosa-cell tumour of the ovary is reported in which the patient survived for almost five years after lung metastases were first diagnosed. Repeated X-ray therapy to the lungs and to the peritoneal metastases led to regression in the tumour masses. A response by the lung metastases to parahydroxypropio-phenone was also shown. The conclusion is drawn that granulosa-cell tumour of the ovary is a radio-sensitive tumour, both from this case and from a review of the literature.

Acknowledgements.

The patient was under the supervision of the writer for the last three years of her life, but at various times was under the care of the honorary staff of the Alfred Hospital, the Austin Hospital and Prince Henry's Hospital. Details of her past history and treatment were extracted from her records at the Peter MacCallum Clinic by kind permission of Dr. W. P. Holman, Medical Director. In reproducing the radiographs I acknowledge the kindness of Dr. P. Cody, Dr. A. McKay and Dr. G. Villiers, and I am indebted to Dr. J. Funder for the post-mortem report.

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Reports of Cases.

MENINGOENCEPHALITIS DUE TO BRUCELLA ABORTUS.

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In the year 1897 the first proven case of *Brucella* meningo-encephalitis was reported by Hughes. *Brucella melitensis* was isolated at autopsy from the brain of a British soldier serving in Malta. It was not until 1924 that the second case was reported by Lemaire, and since then sporadic case reports have appeared in the medical literature, the infecting organism usually being *Brucella abortus*. Spink and Hall (1949) drew attention to these case reports and reported their observations on four patients suffering from meningoencephalitis due to *Br. abortus*. The symptomatology was variable, but evidence of the diffuse involvement of the central nervous system was commonly found. Spink and Hall pointed out that Hughes, in his monograph, "Mediterranean Malta or Undulant Fever", stated in 1897 that:

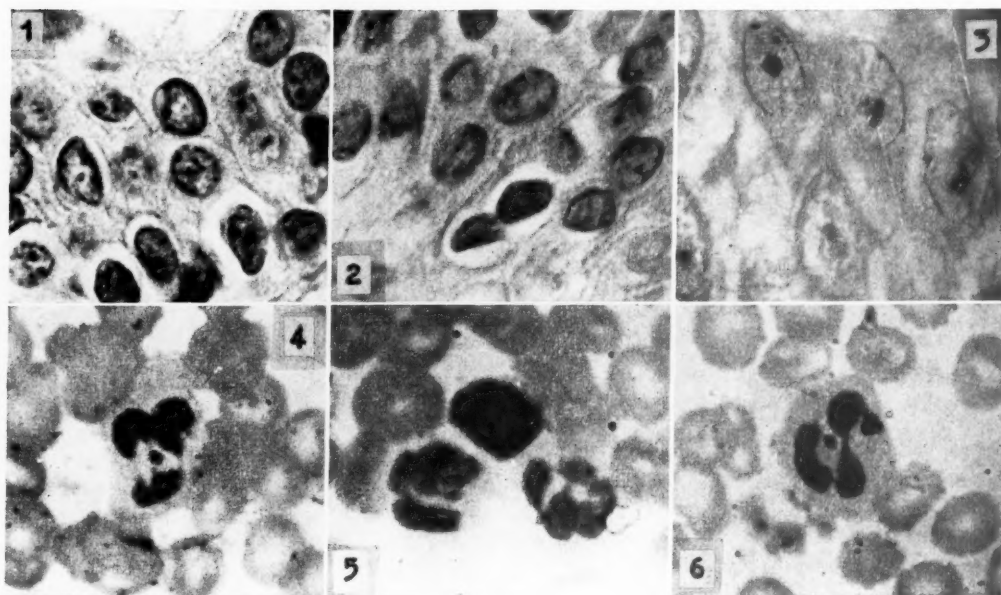
The action of the virus on the nervous system, as evinced by the common clinical phenomena of the disease, is, next to pyrexia, one of the most constant and characteristic features in this fever. These manifestations vary from the commonly encountered psychic disturbances, including mental depression and emotional instability, to the more serious but rare complications such as meningitis and encephalitis.

Spink and Hall stressed the chronicity of the disease, but pointed out that remarkable, but unpredictable, improvement was common. Agglutinins for *Br. abortus* were found to be present in the blood. The number of cells in the cerebro-spinal fluid was raised, and frequently the protein was sufficiently increased to produce a yellow coloration of the fluid. In two of their four cases the organism was cultured from the cerebro-spinal fluid.

The main clinical features found in their patients may be summarized for comparison with the case to be reported here. The first patient had a two-year history of recurrent febrile episodes, and later headache, vertigo, pruritus, occasional attacks of sensory epilepsy and aphasia. Loss of weight was also prominent. A second patient, a young farmhand, known to have had brucellosis for two years, became febrile and delirious whilst at a boys' camp. At this time organisms were grown from the cerebro-spinal fluid. Subsequently the boy had recurrent bouts of numbness of the tongue followed by delirium and fever, despite prolonged treatment with sulphadiazine. On one occasion he was unable to speak for a short period of time. Trunkal ataxia and bilateral nerve deafness were observed. The third patient presented with an acute psychosis, whilst the fourth, a twenty-four-years-old housewife, was initially diagnosed as suffering from a cerebral tumour. She complained of headache and vomiting, together with numbness and pain in the left hand and leg. Because of this patient's

¹ Drug Houses of Australia Fellow to the Clinical Research Unit.

ILLUSTRATIONS TO THE ARTICLE BY H. F. BETTINGER.



ILLUSTRATIONS TO THE ARTICLE BY ADRIAN G. BASSER.

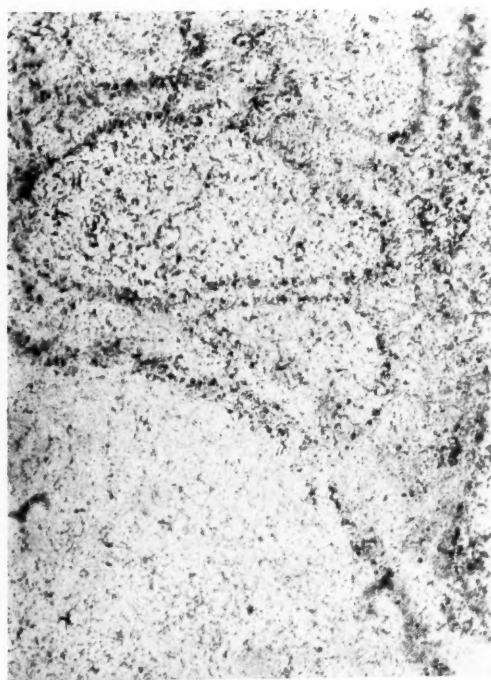


FIGURE I.

Autoradiograph of human thyroid gland ($\times 20$). The patient received a tracer dose of ^{131}I twenty-four hours previously. The exposed silver granules are deposited in greatest concentration along the epithelial walls of the follicles.



FIGURE II.

High-power view of portion of the same autoradiograph ($\times 60$). This shows the walls of three thyroid follicles with a vascular channel between them. There is a very slight exposure over the colloid areas with marked concentration of the radiiodine over the apical areas of the cells lining the follicles.

ILLUSTRATIONS TO THE ARTICLE BY BASIL A. STOLL, F.F.R., M.R.C.S., D.M.R.T. & D.

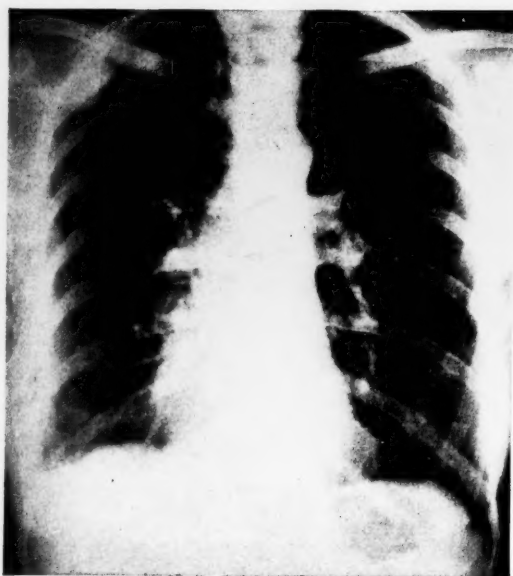


FIGURE I.
July 4, 1950.

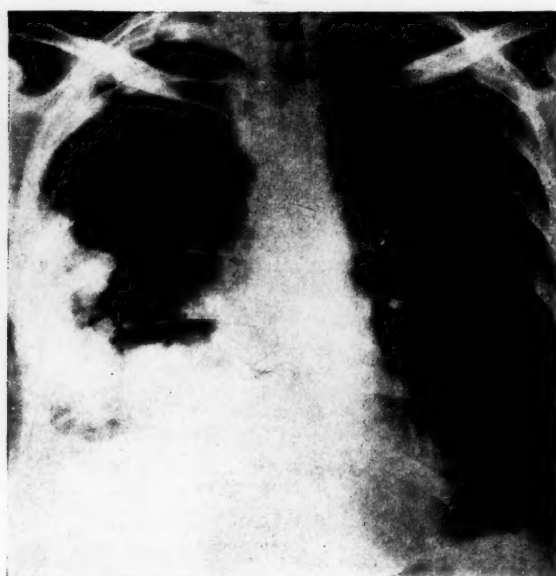


FIGURE II.
February 2, 1953.

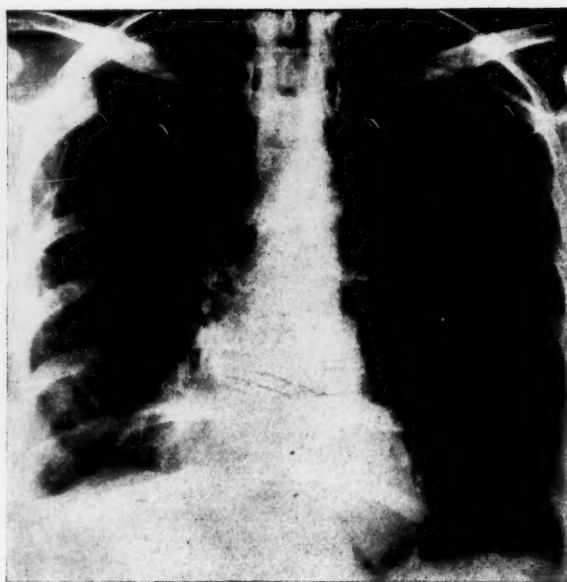


FIGURE III.
April 23, 1953.

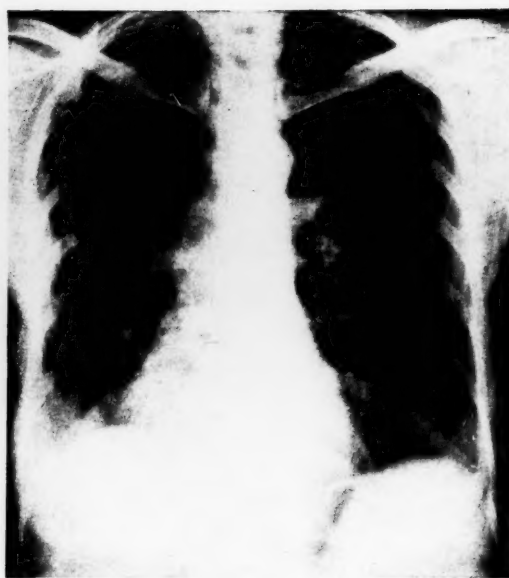


FIGURE IV.
January 25, 1955.

ILLUSTRATIONS TO THE ARTICLE BY P. EBELING AND E. GRAEME ROBERTSON.

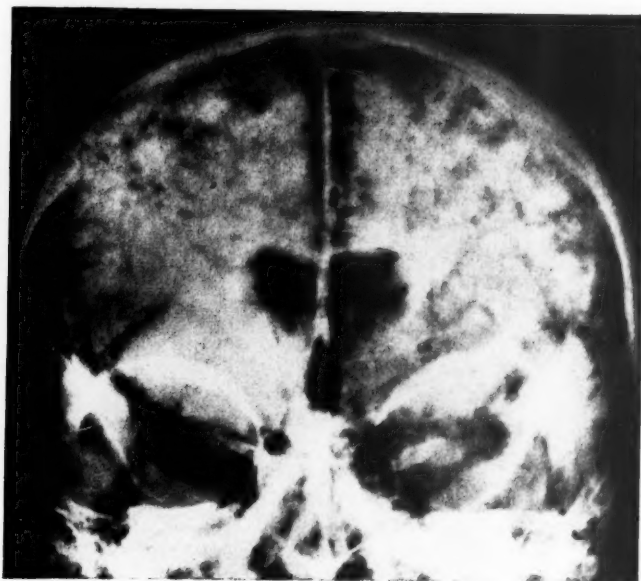


FIGURE 1A.

Pneumo-encephalogram of a patient suffering from *Brucella abortus* (antero-posterior view) showing widening of the subarachnoid space over the cerebral hemispheres and the gross irregularity of the surface of the cortex.

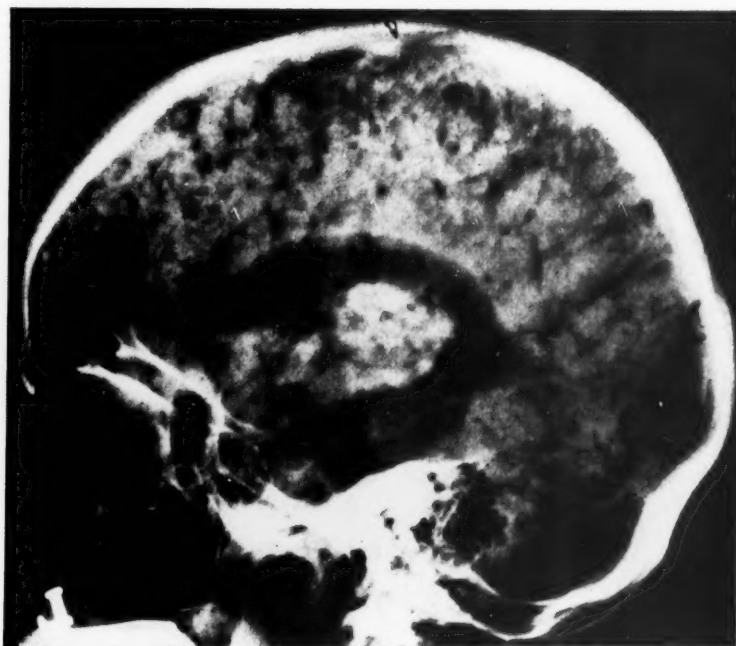


FIGURE 1B.

Pneumo-encephalogram of a patient suffering from *Brucella abortus* (lateral view) showing widening of the subarachnoid space over the cerebral hemispheres and the gross irregularity of the surface of the cortex.

ILLUSTRATIONS TO THE ARTICLE BY CHARLES SWAN, D.Sc., M.D., D.O.M.S.,
AND ERIC FRENCH, M.Sc., Ph.D.

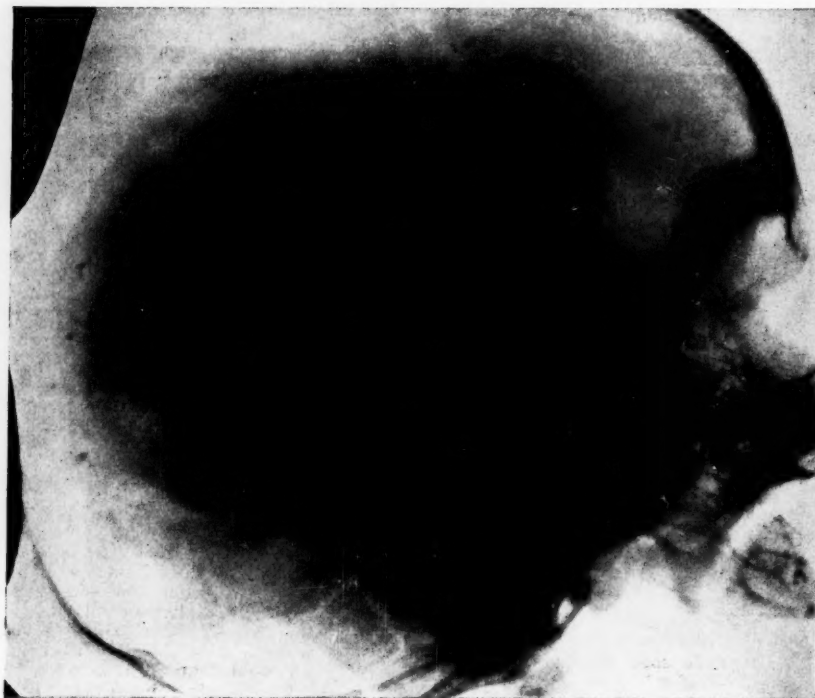


FIGURE I.
Skull, lateral view, showing scattered cerebral calcification.

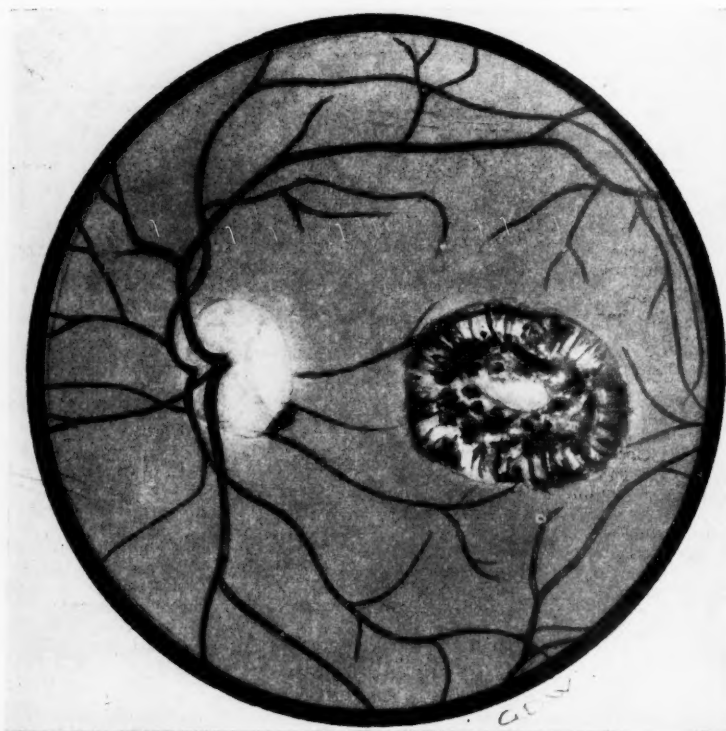


FIGURE II.
Drawing of left *fundus oculi* showing central chorioretinitis and temporal pallor of the optic disk.

papilledema, ventriculography was carried out, but revealed no ventricular displacement. The papilledema gradually subsided, and it was not until two months after admission that search for the cause of the intermittent elevation of temperature led to the discovery of a serum titre of 1/640 for *Br. abortus*. After a short course of sulphathiazole the cerebro-spinal fluid was found to contain 62 mononuclear cells per cubic millimetre, and 100 milligrammes of protein per 100 millilitres. Finally, these authors comment:

These clinical studies on encephalomeningitis demonstrate the chronicity of brucellosis when the central nervous system and the meninges are invaded. In the foregoing cases the illness persisted for as long as four years. Because human brucellosis occurs sporadically, and because the clinical manifestations are not specific, instances of *Brucella* encephalomeningitis might easily be overlooked. This entity should be considered in any case of undefined inflammation of the brain or the meninges. Early diagnosis of *Brucella* encephalomeningitis is desired because adequate antibrucella therapy may prevent chronicity and also serious organic changes in the nervous tissue. In this clinic, aureomycin has been quite effective in culturally proved cases of acute and chronic brucellosis due to *Brucella abortus*. It has been established that aureomycin appears in the cerebrospinal fluid following the oral administration of the drug.

Clinical Record.

While a prisoner of war in Singapore and Changi from 1941 to 1945, an Australian soldier had suffered from malaria, hook-worm, dysentery and beri-beri. Subsequently he felt well until early in 1951; then, when he was twenty-eight years old, he felt very nervous and suffered from "head storms" and attacks of shakiness which occurred whenever he tried to work and which interfered with his occupation as a carpenter. In December, 1951, he began to suffer from a series of attacks in which the right side of his face twitched, then the right hand and, later, the right leg trembled. This was soon succeeded by "pins and needles" which extended down the right side of the body leaving a sensation of numbness. A few seconds later he lost consciousness for a few minutes, and this was followed by amnesia for from two to four days. He was told that on one occasion he was obstreperous and had to be tied down. In one attack, in contrast to the usual dysaesthesia on the right side, the left leg became weak and useless. In the fifth attack, in April, 1952, he was admitted to a country hospital in a feverish, delirious state. He was treated with antibiotics and the initial temperature of 104° F. fell to normal within two days. There was transient weakness of the right arm and leg. He suffered from dull frontal headaches which increased when he lay down, and lasted for several days on end. He lost one and a half stone in weight in twelve months.

He was admitted to the Repatriation General Hospital, Victoria, on June 10, 1952. At that time he was apathetic but no abnormality was detected in the central nervous system. The systolic blood pressure was 130 millimetres of mercury, and the diastolic, 85 millimetres. The temperature was 100.2° F. The spleen was just palpable below the left costal margin. Serum agglutination against *Br. abortus* was positive to a titre of 1/160 (by Wilson and Merrifield's modification of Coombs's test, 1/320). The cerebro-spinal fluid contained 94 mononuclear cells and one polymorphonuclear cell per cubic millimetre and 160 milligrammes of protein per 100 millilitres. Radiographic examination of chest and skull revealed no abnormality. The haemoglobin level was 14.8 grammes per 100 millilitres of blood. The leucocyte count was 7200 cells per cubic millimetre, with an eosinophilia of 16%. Wassermann and Klein tests on the blood both yielded negative results. The electroencephalogram was normal.

One gramme of "Chloromycetin" was given daily, and within a few days the fever subsided and the spleen was no longer palpable. Frontal headache was severe, but there was no neck stiffness. During the first week of "Chloromycetin" therapy blood culture yielded negative results, and cultures of cerebro-spinal fluid on several occasions

showed no growth after incubation for at least fourteen days. On July 2, twelve days after commencing the "Chloromycetin", the patient became confused and the speech hesitant. The right leg was weak and the tendon reflexes in the right arm were decreased, whilst the plantar reflexes remained flexor in type. In addition, a slight left lower motor neuron facial weakness developed. The cerebro-spinal fluid contained 210 mononuclear cells per cubic millimetre, with 200 milligrammes of protein, 740 milligrammes of chlorides and 30 milligrammes of sugar per 100 millilitres. On the following day, left carotid percutaneous angiography disclosed no abnormality. The next day the patient was drowsy and irritable. He neither spoke nor responded to requests. The agglutination titre against *Br. abortus* had risen to 1/1280. During the next six days the mental confusion, paresis and dysphasia gradually lessened. There was no papilledema, although on July 8 the pressure of the cerebro-spinal fluid was 275 millimetres. The fluid was blood-stained and contained 575 mononuclear cells and 260 milligrammes of protein per 100 millilitres. "Chloromycetin" was discontinued and therapy was continued with combined "Terramycin" and "Aureomycin". He continued to improve, and the agglutination titres progressively fell to 1/320. By the time of discharge on August 7, symptoms were slight, and the abnormal signs had disappeared. The pathological findings during the first stage of the patient's illness are summarized in Table I.

On March 1, 1953, the patient was admitted to the Clinical Research Unit of the Royal Melbourne Hospital for further investigation and treatment. He stated that he had been reasonably well until December, 1952, when he had suffered from a further attack of right-sided numbness followed by a period of confusion. Since then he had noticed increasing deafness in both ears with some tinnitus. In January, 1953, his gait was unsteady, with a tendency to stagger to the left. Severe headache, both at the front and at the back of the head, occurred almost daily and vomiting was frequent. He had no appetite and continued to lose weight. For the first time he admitted that he had suffered from bouts of fever with associated sweating.

Examination revealed little apart from slow cerebation and bilateral nerve deafness (confirmed by audiography). The spleen was not palpable and the temperature was normal. The cerebro-spinal fluid contained only twelve white cells per cubic millimetre, but was yellow in colour, with 300 milligrammes of protein per 100 millilitres. The serum agglutination against *Br. abortus* was positive to a titre of 1/160. All initial and subsequent cultures of blood and cerebro-spinal fluid, as well as that of a fragment of liver obtained at needle biopsy, yielded no growth of *Br. abortus*. Neither granulomata nor increase in fibrous tissue was evident in the material obtained at liver biopsy. An electroencephalogram indicated an increase in low voltage random slow activity at a rate of around five waves of depolarization per second in both parietal regions, especially on the right side.

A pneumoencephalogram (Figure 1) was performed on March 17. The fourth ventricle appeared to be of normal size, shape and position. The *cisterna magna* was of moderate size. The pontine and interpeduncular cisterns appeared to be normal and the optic nerves were well defined. The subarachnoid space over the upper surface of the cerebellum was deep. The anterior horns and bodies of the lateral ventricles appeared to be normal in size, shape and position, while the temporal horns were slightly larger than usual. A little irregularity of the ventricular outlines was apparent. The third ventricle was wider than normal, measuring one centimetre across. The subarachnoid space over the surface of the brain had an extraordinary appearance of small irregularities, looking like small depressions or small excrescences. The sulci were widened, but the typical appearance of the subarachnoid space was of small collections of gas scattered over the hemispheres.

Within twenty-four hours the patient became gravely ill, with initial agitation and confusion progressing to mild stupor. He vomited all oral feedings, including fluids, and

TABLE I.

Date.	Cerebro-Spinal Fluid.								<i>Brucella abortus</i> Agglutination.
	Colour.	Pressure.	Protein.	Sugar.	Chloride.	Cells.			
						Erythrocytes.	Polymorphs.	Mononuclears.	
16/6/52	—	—	—	—	—	—	—	—	1/160
20/6/52	—	—	160	—	—	1	1	94	—
24/6/52	Clear yellow.	80	245	26	—	130	3	150	—
27/5/52	Yellow turbid.	Low.	200	30	740	131	—	210	—
4/7/52	—	—	—	—	—	—	—	—	1/1280
8/7/52	Bloodstained.	275	260	45	—	14,000	1	575	—
11/7/52	Bloodstained.	250	—	—	—	—	—	—	—
17/7/52	—	—	—	—	—	—	—	—	1/640
28/7/52	—	—	—	—	—	—	—	—	1/320

the temperature rose to 103.2° F. Complete aphasia with right hemiparesis developed. The right arm was the most severely affected, and the right plantar response was extensor. Cervical rigidity was present.

Within three days the fever subsided and the patient once more tolerated fluids given by mouth. A further serum agglutination test performed at this time revealed a titre of 1/1280. The hemiparesis lessened over the following ten days, whilst the aphasia was somewhat slower in resolving.

A course of streptomycin and sulphadiazine, later combined with "Chloromycetin", was commenced on March 26 and continued for six weeks, during which time all symptoms and signs abated. At the time of discharge on May 15, 1953, the agglutination titre had fallen to 1/320, but the cellular and protein levels remained raised in the cerebro-spinal fluid. Table II summarizes the pathological findings during the second period in hospital.

When readmitted to the unit in March, 1954, the patient felt much improved and had resumed his occupation as a carpenter. The power in his right hand (his dominant hand) was adequate. Headaches were infrequent and he had gained in weight. His sense of balance had returned and he had not suffered any further attacks of right-sided weakness and numbness. His memory and concentration were gradually improving. He claimed that the deafness was no worse and this was confirmed by audiometry. He had to some extent overcome this disability by lip reading. He appeared dull intellectually, and he displayed little emotion. The grip of the right hand was slightly weak. Cells (seven lymphocytes) and protein (90 milligrammes per 100 millilitres) were increased in the cerebro-spinal fluid and the titre of agglutinins was 1/320.

By March, 1955, he was building wooden houses with a single assistant, and there had been a definite improvement of his mentality. He was free from symptoms, apart from nerve deafness which audiometry showed to have improved slightly, and no other abnormal signs were found. On this occasion the cerebro-spinal fluid protein was 70 milligrammes per centum and the cell content had fallen to two lymphocytes per cubic millimetre. The result of the *Brucella* agglutination test was negative on two occasions.

The eosinophilic cells in the blood were increased (1600 cells per cubic millimetre).

Discussion.

The incidence of clinical human brucellosis is not high in the State of Victoria. From a population of approximately two and a half million, 108 cases have been reported during the past five years. However, bovine brucellosis is widespread in most dairying districts. It has been stated by Seddon (1953) that before the introduction of vaccination with the attenuated strain 19 of *Br. abortus* during the past decade, as many as 16% of dairy cattle in Victoria had evidence of infection. Clapp (1954) more recently found a similar situation in the neighbouring State of South Australia, where non-vaccinated cattle showed a herd incidence of from 10% to 57%.

The positive response to agglutination tests in this patient, who suffered from a chronic, intermittently febrile illness, with deterioration of higher cerebral functions and focal epileptic and parietic episodes, leading to eventual improvement and destruction of the invading organism (aided by antibiotics), and an increase in mononuclear cells and protein in the yellow cerebro-spinal fluid, seem sufficient evidence to justify a diagnosis of meningo-encephalitis due to *Br. abortus*, despite failure to grow the infecting agent. A number of antibiotics were employed in treatment. Spink (1955) now advocates a combination of streptomycin and tetracycline as being the most effective form of treatment.

The appearance of the shadow of the subarachnoid space in the pneumoencephalogram is, in the writers' experience, unique. It suggested either innumerable small cortical ulcers, areas of superficial atrophy, or innumerable small excrescences superimposed upon slight shrinkage of the brain (since the subarachnoid space was widened). It is of interest to compare Hansmann and Schenken's (1932) description of a brain infected with *Brucella melitensis* var. *porcine* (*Brucella suis*). The organism had been grown from the cerebro-spinal fluid during a young man's illness of eleven months' duration, which ended with fatal subarachnoid hæmorrhage. This proved, at autopsy, to have been due to rupture of a mycotic aneurysm of the basilar artery. Meningeal "tubercles" of unspecified size, were

TABLE II.

Date.	Cerebro-Spinal Fluid.							<i>Brucella abortus</i> Agglutination.
	Colour.	Protein.	Sugar.	Chloride.	Cells.			
					Erythrocytes.	Polymorphs.	Lymphocytes.	
3/3/53	Yellow.	300	30	670	29	4	8	1/160
17/3/53	Yellow.	Encephalo-gram.	—	—	5	38	4	—
20/3/53	—	—	—	—	—	—	—	1/1280
24/3/53	Clear.	200	100	720	40	50	25	—
30/3/53	—	—	—	—	—	—	—	1/640
8/4/53	—	—	—	—	—	—	—	1/1280
1/5/53	—	—	—	—	—	—	—	1/640
6/5/53	—	—	—	—	—	—	—	1/320
8/5/53	Yellow.	100	40	720	3	3	45	1/320

obvious over the anterior and central portions of the cerebral hemispheres. These were composed of accumulations of inflammatory cells, which tended to undergo central necrosis, with hyalinization of connective tissue and the disappearance of inflammatory cells. Thus healing and cure may be recognized by microscopic examination. (Such a pathological process could well result in the "moth-eaten" appearance of the cortical outline revealed by gas in our patient.) There was granular ependymitis and perivascular infiltration of the vessels penetrating the cortex and near the ventricular lining.

In our patient an extraordinary exacerbation of previous signs and symptoms followed the introduction of gas, presumably owing to irritation of the meninges and vascular changes. It should perhaps be recorded that such a reaction has not been encountered in a series of encephalographic examinations in many other conditions (Robertson, in the press). The clinical deterioration was accompanied by a rapid and pronounced rise in the titre of *Brucella* agglutinins. The disturbance subsided rapidly, and was succeeded by uninterrupted recovery with return of working efficiency. Perhaps the introduction of air resulted both in renewed bacterial activity and a rejuvenated immune response. The degree of functional recovery which occurred is remarkable when the appearance of the apparently atrophic gyri of the cerebral hemispheres is considered.

Summary.

A case of meningo-encephalitis due to *Brucella abortus* is described. Attention is drawn to a unique encephalographic finding. This accords remarkably well with the pathological appearances found in the only case of this condition for which autopsy findings have been reported (Hansmann and Schenken, 1932). The clinical recovery of this patient is all the more notable when the encephalographic appearance is considered.

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A CASE OF TOXOPLASMOSIS.

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The occurrence of toxoplasmosis in human beings in Australia was first reported by Robertson (1946) and sub-

sequently by Edmonds (1949), by Jack (1952), by Hertzberg (1952), by Kerkenezov (1953), by Finckh (1954) and by O'Reilly (1954). Hitherto the disease has not been described in South Australia. Accordingly we wish to report the following case. As the mother had lived in the Northern Territory for the first six months of her pregnancy, it seems more likely that the infection originated in that State rather than in South Australia, although it would appear that the maternal infection may occur as late as the twenty-sixth week of gestation (Farquhar and Turner, 1949).

Clinical Record.

Ophthalmological Investigations (C.S.).

A, a female patient, aged four months, was referred to the Adelaide Children's Hospital on May 21, 1954, in order to eliminate the possibility that she might be suffering from retrolental fibroplasia. A note from Mareeba Babies' Hospital stated that the child had been born on February 26, 1954, four to five weeks prematurely. Her birth weight was four pounds seven ounces. Continuous oxygen therapy had been administered by means of a tent for six days after delivery. On examination of the baby, her pupillary reactions and eye movements were normal.

On May 28, 1954, the baby was examined with the aid of a mydriatic. There was no evidence of retrolental fibroplasia. The media were clear and the right *fundus oculi* was normal. Examination of the left *fundus oculi*, however, revealed central chorio-retinitis, suggestive of toxoplasmosis. On this account the child was sent for X-ray examination of her skull. Dr. Colin Gurner reported that there were "... small scattered areas of intracranial calcification consistent with toxoplasmosis" (Figure 1).

Subsequently (June 16, 1954) the baby was examined under a general anaesthetic. Examination of the left eye showed, in addition to chorio-retinitis, a strand of persistent pupillary membrane. An interesting feature of the chorio-retinitis was that there was a central area of pigmentation which appeared to be on a more superficial plane than the remainder.

On September 17, 1954, the left eye was noted to be diverging intermittently. The child's eyes would follow a light.

On March 4, 1955, the divergence amounted to 10°, and on May 6, 1955, it had increased to 20°. There was no nystagmus.

Further examination undertaken on June 8, 1955, revealed that the area of chorio-retinitis in the macular region of the left eye had altered slightly, and that the central area of the lesion, instead of projecting, had a punched-out appearance. The larger choroidal vessels could be seen, the choroidal atrophy being insufficient to expose much of the underlying sclera. There was temporal pallor of the optic disk (Figure 2). The child's head circumference was 17.4 inches. Questioning of the mother elicited the following information. The mother had been living in the Northern Territory at the onset of pregnancy and had not come to Adelaide until the end of the sixth month of gestation. Previously she had lived at various times in Melbourne (three years), Perth (five months), New Zealand (two months) and the Northern Territory (three years). The only animal contacts during her pregnancy were a pet cat, which she had never handled, and a parrot. No rabbit flesh had been eaten during pregnancy. She had had rabbits as pets as a child of twelve years. She had had much nausea and vomiting during the early months of pregnancy, but no febrile illness or rash. The father had been well during the pregnancy. As far as the mother knew the baby had never had any convulsions. At birth the child had been deeply jaundiced.

Medical Investigation.

The medical investigation was undertaken by Dr. R. N. C. Bickford.

On examination on June 15, 1954, the baby weighed nine pounds 13 ounces. The circumference of her skull was 14.4

¹ Working with the aid of a grant from the National Health and Medical Research Council, Australia.

inches. No abnormality was detected in her heart, lungs or abdomen. Blood examination revealed that the haemoglobin value was 8.1 grammes per 100 cubic centimetres. The red blood cells numbered 3,658,000 per cubic millimetre, and the white blood cells numbered 7500 per cubic millimetre; 25% were polymorphonuclear leucocytes, 64% were lymphocytes, 8% were monocytes, 1% were eosinophile leucocytes, and 1% were basophile leucocytes. In addition, 1% of neutrophile myelocytes were present. Platelets were plentiful. There was some pallor of the red blood corpuscles.

X-ray examination of the baby on June 22, 1954, disclosed no abnormality of the lungs or long bones.

The child was examined at intervals from that time onwards, and except for initial feeding difficulties and a transient erythematous-squamous rash of the buttocks there was steady progress in her development. By October 22, 1954, she was able to sit up and was starting to cut teeth. On November 5, 1954, the circumference of her skull was 16.5 inches. Her body weight on March 4, 1955, was 17 pounds four ounces. She could walk, had eight teeth and seemed very healthy. Immunization against diphtheria, whooping-cough and tetanus had been initiated. By June 3, 1955, she was able to say a few words.

Serological Tests.

A Wassermann test performed on June 4, 1954, produced a negative result.

Complement fixation and methylene blue dye tests for toxoplasmosis were undertaken by one of us (E.F.) on serum obtained from the child and her parents on March 22, 1955. The child's serum at a dilution of one in 128 fixed two minimal haemolytic doses (M.H.D.) of complement in an "overnight ice box" test with toxoplasma complement-fixing antigen. Under similar conditions the mother's serum at a dilution of one in eight fixed two M.H.D. of complement, whereas the father's serum at a dilution of one in two failed to fix complement. The test was controlled with several "negative" human sera and a known hyperimmune toxoplasma guinea-pig serum. A cytoplasm-modifying dye test was performed according to the technique recommended by Sabin *et alii* (1952). The child's and the mother's serum gave a positive result at a dilution of one in 1024, while the father's serum gave negative results at a dilution of one in 16 and all higher dilutions tested.

Discussion.

Clinically, the principal features of congenital toxoplasmosis comprise convulsions, chorio-retinitis, cerebral calcification, hydrocephalus (occasionally microcephaly), mental deficiency, jaundice, hepatomegaly and splenomegaly. In the present case only three of these stigmata—namely, chorio-retinitis, cerebral calcification and jaundice—have so far been elicited, but they include the two most important ones, for, as Sabin and Feldman (1949a) have pointed out:

... when chorioretinopathy is associated with cerebral calcification in infancy, the chances are approximately 90 per cent that it is due to toxoplasma. Conversely, when chorioretinopathy is encountered without cerebral calcification in infancy, the chances may be about 90 per cent that it is not due to toxoplasma.

Up to the present time, in the case here described, no convulsions have been detected. Jack (1952) states that they occur in about 70% of cases. Out of a total of eight patients suffering from congenital toxoplasmosis recorded in Australia, only two are mentioned as having suffered from convulsions. Some of the children may have been too young for the convulsions to have appeared. In a case described by Robertson (1946), for instance, the convulsions did not manifest themselves until the patient was aged between twelve and thirteen years.

In the present case there was no evidence of hydrocephalus. On the contrary, there was a slight tendency, which was probably not significant, to microcephaly.

The confinement of the chorio-retinitis to one eye is of interest from two points of view. In the first place, it is

logical to assume that the two eyes would be equally susceptible to the protozoon, and that in view of the widespread nature of the infection the ocular lesions would be bilateral. The vast majority of cases so far recorded support this assumption, and cases such as the present one in which the chorio-retinitis is monocular are uncommon (Wagener, 1944). An analogous state of affairs prevails in the case of another prenatal infection—namely, rubella—in which the cataracts are bilateral in three out of four instances (Swan, 1951a), and in which deafness nearly always affects both ears (Swan, 1951b). Secondly, the sparing of one eye by the pathological process is extremely fortunate from the viewpoint of the child, for with the retention of central vision, even though it is monocular, searching nystagmus has been obviated. Moreover, if her mental condition is normal (and clinically there is no reason as yet to believe otherwise) she should be educable under standard school conditions. Nevertheless, the protozoon has taken its toll, as the loss of left fixation has been followed by the development of a divergent squint.

The origin of the infection in the mother remains unknown. On the basis of a negative response to the antibody test, the father can be eliminated. In Australia Wickham and Carne (1950) have demonstrated the parasites in various animals. They suggest the possibility of transmission of the disease by ingestion of food or water contaminated with infected urine or faeces. In the present case the household pets—namely, a cat and a parrot—cannot be ruled out as possible sources of infection.

Sabin *et alii* (1952) state that a titre of one in two in a well-controlled complement fixation test is indicative of past or present infection with toxoplasma, so that in the present case the child's serum (titre one in 128) may be looked upon as "strongly positive", whereas the mother's (titre one in eight) is only moderately so. The results of the cytoplasm-modifying dye test are strongly positive for the child and her mother, but negative for the father. Sabin *et alii* (1952) maintain that the dye test titres may persist at a high level for at least five years. The complement fixation titres, while persisting for years, tend to fall more rapidly than the dye test titres.

The different titres given by the child's and the mother's serum in the complement fixation test may be simply a reflection of individual reaction to infection. Two other possible explanations suggest themselves. On the one hand, it might be argued that a mild, apparently symptomless infection in the mother would be less likely to evoke and maintain a high level of antibody than would a severe infection in the infant. Alternatively, if the disease had become quiescent in the mother and was still active in the infant, it would be reasonable to expect that the titre of antibody in the latter would remain high because of the continual stimulus by new antigen. In this regard the alteration in appearance of the fundal lesion in the infant's left eye in the period of a year elapsing between the respective examinations on June 16, 1954, and on June 8, 1955, suggests that the infection may still have been active. Incidentally, the much higher level of antibody in the child would seem to preclude the possibility that the antibody was derived from the mother by passive transfer through the placenta rather than from actual infection of the child (Sabin and Feldman, 1949b).

In the absence of symptoms or signs of cerebral involvement, other than the calcification elicited by radiography, ventricular puncture has not been deemed justifiable in order to obtain cerebro-spinal fluid and sediment for direct examination and for inoculation of animals and developing chick embryos in an attempt to isolate the actual parasite.

Summary.

A female child, aged four months, suffered from unilateral chorio-retinitis, cerebral calcification and, at birth, transient jaundice. Her mother, who had lived for the first six months of the pregnancy in the Northern Territory and thereafter in South Australia, had been well during gestation except for nausea and vomiting in the early months. The child's serum taken thirteen months after she was born gave a positive response to the complement

fixation test against toxoplasma in a titre of one in 128, whereas the mother's serum gave a positive response in a titre of one in eight. The result of the cytoplasm-modifying dye test was positive in both the child's and the mother's serum at a dilution of one in 1024.

On the basis of the foregoing evidence, a diagnosis of congenital toxoplasmosis is considered justifiable.

Acknowledgements.

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Reviews.

Asclepiades, His Life and Writings: A Translation of Cocchi's Life of Asclepiades and Gumpert's Fragments of Asclepiades. By Robert Montraville, M.D.; 1955. Connecticut: Elizabeth Licht, publisher. 9" x 6", pp. 178. Price: \$6.00.

THE late Dr. Robert Montraville Green, Emeritus Professor of Anatomy, Harvard Medical School, Massachusetts, must have derived considerable satisfaction in employing his linguistic abilities for the translation into English of two foreign eighteenth century texts. These antiquated and highly imaginative pieces of historical research and interpretation deal with the scanty biographical facts and peculiar medical concepts of that unorthodox physician Asclepiades of Bithynia, who practised his profession in Rome early in the first century B.C.

This book contains a short preface by Sidney Licht, M.D.; then the English translation of an Italian reprint of a "Life of Asclepiades" written by Antonio Cocchi, a Florentine professor of anatomy who died in 1758; and, lastly, a lengthy commentary on the fragmentary writings of this Greek medical doctrinaire published in 1794 by Christian Gottlieb Gumpert while at the University of Weimar.

We are told that Asclepiades was the most important physician between Hippocrates and Galen; but this conten-

tion is not entirely supported either by historical research or in the present translations. Even the ancient writers near to his time could never quite make up their minds whether to praise his unconventional approach to the healing art or to condemn it outright. At all events, he rose to fame in the great city of Rome after promising its impressionable and credulous citizens to cure their diseases "swiftly, safely and pleasantly".

Asclepiades solved many thorny problems in the practice of medicine by enunciating his own principles of physiology and pathology, which ignored anatomical difficulties and made diagnosis and treatment a comparatively easy matter. In his adoption of therapeutic measures he preferred active interference to the masterly inactivity recommended by Hippocrates, which he caustically referred to as "a premeditation on death".

This book gives many useful references to ancient bibliography; but the patient application of a Stoic philosopher is needed if one wishes to read it through from beginning to end.

Erythromycin. By Wallace E. Herrell, M.D., M.S., F.A.C.P., with a foreword by Henry Welch, Ph.D., and Félix Martí-Ibáñez, M.D.; "Antibiotics Monographs No. 1"; 1955. New York: Medical Encyclopedia, Incorporated. New York and London: Interscience Publishers, Incorporated. 9" x 6", pp. 64. Price: \$3.00.

THIS is the first of a series of antibiotic monographs to be published by Medical Encyclopedia, Incorporated. Dr. Wallace E. Herrell in his usual clear and succinct manner has crammed into this monograph, which can be read in one hour, not only his own wide experience with this drug, but also a complete résumé of current thought and opinion in respect to its pharmacology and use.

As he so wisely points out, erythromycin is not a broad spectrum antibiotic, but a highly selective antimicrobial agent closely resembling penicillin in its bacterial action. It is a pity he did not stress the fact that it is our last bulwark against the staphylococcus and therefore not to be used lightly and without thought because of the risk of adding erythromycin-resistance to the *Micrococcus pyogenes*. The clinician would have appreciated a more definite statement from Dr. Herrell on its relative place in antibiotic therapy.

We look forward to further monographs of this series.

Topley and Wilson's Principles of Bacteriology and Immunity. By G. S. Wilson, M.D., F.R.C.P., D.P.H., and A. A. Miles, C.B.E., M.A., M.D., F.R.C.P.; Fourth Edition; 1955. London: Edward Arnold (Publishers), Limited. Volumes I and II. 9½" x 6½", pp. 2427, with 302 figures. Price: £8.

"TOPELY AND WILSON", as it is usually known, has been used in all English-speaking countries as a comprehensive and reliable survey and reference book in the subject, since its publication in 1929. The second edition appeared in 1936, the third was delayed till 1946, and now another nine years have elapsed. This illustrates the general contention that ten years elapse between research and recognition in the text-book. There are two main groups of people interested in new editions—workers in special branches of research whose problems impinge upon the broad subject, and workers in applied bacteriology, diagnostic, public health and food technology laboratories. Each group should be in touch with current research journals, but they both need an up-to-date book of general reference.

The present edition is in the same form as the old, and the authors survey their extending problems in the preface. The volumes are enlarged by about 200 pages, and the focus is switched more towards the bacteriology of infections than to general aspects of the subject.

The first eleven chapters of Volume I are concerned with structure and metabolism, and there is much that is new. The electron microscope and methods of biochemical analysis have contributed new techniques, and the organic chemists have made clear the chemistry of many antibiotics. The mechanism of antibiotic resistance is still a closed book, although we now recognize the difference between true resistance and that due to the production of penicillinase. The study of antigen antibody reactions now rests on the fact that antibody is a special globulin, which agrees well with the concept of the unity of antibodies. The use of fluorescent dyes added to the globulin molecule can indicate the site of antigen in the cell, and this is also being applied to the study of variation and inheritance in the bacterial cell.

Transformation of bacterial genotypes by bacterial products, first achieved for the pneumococcus, has been produced for *Haemophilus influenzae* also by DNA complexes, and other changes such as penicillin resistance and motility have been produced by less defined substances. Bacteriophage as a bacterial virus has become an immensely useful tool, and the phenomenon of lysogenicity is used to establish new specific types in some genera. The references on bacteriophage occupy nearly eight pages, which gives some idea of the volume of new work added to the text.

Part 2, "Systematic Bacteriology", follows the conventional arrangement, and can only be touched on lightly here. The serology of the tubercle bacillus has not advanced in spite of new techniques; the recognition of *Mycobacterium ulcerans* as a pathogen depends upon temperature of incubation in relation to growth. Diphtheria toxin must still be considered an impure substance, and the recognition that the presence of a phage can confer virulence upon a non-virulent strain of diphtheria bacillus must stimulate a new approach to the problems of virulence in general. Classification of the hemolytic streptococci Group D is much clearer; the anaerobic streptococci have nothing new. The ease with which the staphylococcus develops antibiotic resistance has given great impetus to the phage typing of strains, the fractionation of toxins, hemolysin and coagulase, but attempts to prepare antisera for therapeutic use seem to have ceased in 1938. The brief note on the classification of Gram-negative non-sporing bacilli once again "adheres to the conservative attitude", so that teachers of medical students are still burdened with the necessity of teaching alternative names. The work of Kaufmann, although introducing some order into the group of lactose fermenters and permitting recognition as pathogens of some strains found in infantile diarrhoeas, has also increased difficulties of nomenclature. The catalogue of *Salmonella* continues to increase; the authors have commendably attempted condensation here. The chapter on the spore-bearing anaerobic bacilli has new and useful tables, the spore-bearing aerobes have an added table of fermentation reactions, and the pathogenic members can be recognized by phage susceptibility. We notice that the authors have returned to the original spelling of *Bacillus "megaterium"*. This is historically accurate, but will doubtless occasion comment.

Volume II, "Infection and Resistance", has been carefully rewritten. The chapter on measurements and quantitative measurement of error has no less than 10 of its 24 references published since 1946. Koch's third postulate is now expanded to include antibody response, and the rest of this section, discussion of the site of antibody action on mucous surfaces, the transfer of antibody, the mechanism of the Arthus reaction, and the relation of ACTH to the enhancement of resistance to infection by chemotherapeutic agents, is entirely admirable. The summaries at the end of each chapter are very welcome, especially in the last one on immunity to virus diseases.

Part 4, "The Application of Bacteriology to Medicine and Hygiene", fills the last 850 pages, and it is here, amongst the sections on treatment and diagnosis of disease, that the few criticisms come to light. The tables of mortality in the section on tuberculosis would have been more instructive could morbidity and incidence tables have been combined with them. It is surprising to see in-vitro tests for virulence recommended in the section on diphtheria. The technique was partly elaborated in this country, and it is suggested that there are so many difficulties that results in different hands might not be at all comparable. Also the suggestion that carriers of *Corynebacterium diphtheriae* and/or hemolytic streptococci should be treated with a penicillin-sulphonamide snuff seems dangerous in view of the increasing occurrence of sensitivity to both of these substances. The diagnosis of gonococcal infections would appear less and less to be verified in the laboratory, so that the description of methods for preserving swabs being transported to the laboratory is extremely useful. We note in passing that there has been no addition to the references on the bacteriology of appendicitis since 1933.

Pathogenic animal viruses are tentatively defined at the beginning of Chapter 41. It is still much too early to attempt to classify these viruses further, so that the diseases are described roughly corresponding to their size and to the tissues which they selectively attack. Much that is now familiar in the field of poliomyelitis prevention was not available when this edition went to press; nevertheless it is a little strange, in view of all Bodian's work, to see a quotation describing poliomyelitis virus as strictly neurotropic. This surely must be an oversight. The concluding chapters are concerned with the description of the normal flora of the body—a very slowly advancing field—the study of milk, water, air and droplet infection.

There are many black and white illustrations, particularly of slope cultures, which seem most uninformative. The single colony pictures on the other hand give quite vivid impressions of the texture and shape of the growth. There are still two illustrations of chromobacteria in Chapter 26 which are a complete puzzle, and some reproductions of Gram-stained films are quite useless. However, these are matters of opinion, and not serious. The care and attention to detail with which the new edition has been prepared are evident on almost every page, and we are honestly trying to fulfil the request of the authors to point out small faults in this greatly prized bacteriological Bible.

The publishers, Edward Arnold and Son, have continued to furnish beautiful paper and type face, and the volumes lie flat when opened at any page—a real pleasure to the laboratory worker.

Books Received.

[The mention of a book in this column does not imply that no review will appear in a subsequent issue.]

"Excitability of the Heart", by Chandler McC. Brooks, Ph.D., Brian F. Hoffman, M.D., E. E. Suckling, M.Sc., M.E.E., and Oscar Orias, M.D., with a foreword by Carl J. Wiggers, M.D., 1955. London and New York: Grune and Stratton. 8½" x 5½", pp. 387, with illustrations. Price: \$6.50.

There are 12 chapters, each of which has been written as an independent unit; the chapters are complementary to one another. The book is of primary interest to physiologists, but thought likely to appeal to "progressive physicians and surgeons".

"Principles of Human Physiology" (originally written by E. H. Starling, M.D., F.R.C.P., C.M.G., F.R.S.); Twelfth Edition; 1956; by Sir Charles Lovatt Evans, D.Sc., F.R.C.P., F.R.S., LL.D., with chapters on the special senses by H. Hartridge, M.A., M.D., Sc.D., F.R.S. London: J. and A. Churchill, Limited. 9½" x 6½", pp. 1245, with numerous illustrations. Price: 65s.

This work was first published by E. H. Starling in 1912.

"A Short Practice of Surgery", by Hamilton Bailey, F.R.C.S. (Eng.), F.A.C.S., F.R.C.S., and R. J. McNeill Love, M.S. (Lond.), F.R.C.S. (Eng.), F.A.C.S., F.I.C.S., with chapters by John Charnley, F.R.C.S. (Eng.), William P. Cleland, M.R.C.P. (Lond.), F.R.C.S. (Eng.), and Geoffrey Knight, F.R.C.S. (Eng.), with pathological illustrations by L. C. D. Hermitte, M.B., Ch.B. (Edin.); Tenth Edition; 1956. London: H. K. Lewis and Company, Limited. 9½" x 7", pp. 1134, with 1411 illustrations. Price: £4 4s.

The successive editions have appeared at comparatively regular intervals since 1932. Italian and Turkish editions have been published.

"A Course in Practical Therapeutics", by Martin Emil Rehuss, M.D., F.A.C.P., LL.D. (Hon.), and Allison Howe Price, A.B., M.D.; Third Edition; 1956. Baltimore: The Williams and Wilkins Company. Sydney: Angus and Robertson, Limited. 11" x 9", pp. 989, with illustrations. Price: £8 5s.

The first edition (1948) and the second (1951) have been reviewed in this journal. There are 24 contributors to this edition.

"Diagnosis and Treatment of Vascular Disorders: Angiology", edited by Saul S. Samuels, A.M., M.D., F.A.C.A., F.A.C.C.; 1956. Baltimore: The Williams and Wilkins Company. Sydney: Angus and Robertson, Limited. 10" x 7", pp. 628, with many illustrations. Price: £8 16s.

There are 17 chapters in this book which has 24 contributors.

"Clinical Electrocardiography: Part I. The Arrhythmias with an Atlas of Electrocardiograms", by Louis N. Katz, A.B., M.A., M.D., F.A.C.P., and Alfred Pick, M.D.; 1956. Philadelphia: Lea and Febiger. Sydney: Angus and Robertson, Limited. 10" x 7", pp. 737, with 415 illustrations. Price: £9 12s. 6d.

This book is divided into two sections; the first deals with general considerations and the theoretical background of the arrhythmias and the second with their systematic description.

The Medical Journal of Australia

SATURDAY, JUNE 16, 1956.

All articles submitted for publication in this journal should be typed with double or treble spacing. Carbon copies should not be sent. Authors are requested to avoid the use of abbreviations and not to underline either words or phrases.

References to articles and books should be carefully checked. In a reference the following information should be given: surname of author, initials of author, year, full title of article, name of journal, volume, number of first page of the article. The abbreviations used for the titles of journals are those adopted by the Quarterly Cumulative Index Medicus. If a reference is made to an abstract of a paper, the name of the original journal, together with that of the journal in which the abstract has appeared, should be given with full date in each instance.

Authors who are not accustomed to preparing drawings or photographic prints for reproduction are invited to seek the advice of the Editor.

MEDICAL STUDENTS.

ALL medical men and women are medical students; or perhaps we should say that most are and all should be. Lord Lister once said: "You must always be students, learning and unlearning till your life's end, and if, gentlemen, you are not prepared to follow your profession in this spirit, I implore you to leave its ranks and betake yourself to some third-class trade." The fact is, of course, that in the ever-changing field of modern medicine, every practising doctor is forced to be something of a student, even if his main works of reference are the legends on pieces of blotting paper. As a rule, however, when we refer to medical students, we think of undergraduates—not "reg'lar thoroughbred sawbones", but "only in training", as Sam Weller put it. Around these young men and women a curiously legendary atmosphere seems to hang, even in the minds of many of their contemporaries of other faculties. To Mr. Pickwick they were inevitably "fine fellows—very, fine fellows; with judgments matured by observation and reflection; and tastes refined by reading and study"—until he met Mr. Bob Sawyer and Mr. Benjamin Allen. Fortunately, not many of them are as crude as those two worthies, or as perfect as some admission specifications would seem to require. The Professor of Pathology at Yale, Averill A. Liebow,¹ during a visit to the University of St. Andrews in Scotland last year, said rightly that were all the

qualities considered desirable by various speakers and writers in prospective medical students to be made mandatory for admission, hardly a saint already canonized would be allowed to matriculate, and certainly very few of the faculty of any school of medicine now extant. The medical student is, of course, just an average young man or woman intent upon the Hippocratic path for one or another reason, but always, we hope, with at least a slight glimmer of the vision that is born of healthy curiosity mated with compassion.

Those who would like to know something of the medical student through the ages will find a wealth of material in a paper read by Sir Weldon Dalrymple-Champneys² to a meeting of the Section of the History of Medicine of the Royal Society of Medicine last year. Dalrymple-Champneys has even included in his survey medical students among primitive races; and he points out that the requirements for those wishing to be student witch doctors are often highly selective, and that training can be hard and lonely.

In many tribes the candidates have a final practical examination (its details are left to our imagination). A high standard of training is obviously required when we realize that the witch doctor has, amongst other things, "to counteract enchantments, fend off demons, say how an enraged deity may be pacified, influence the weather, ensure success in the chase or a favourable result in battle, and foretell the future—a comprehensive assignment which not even our National Health Service completely covers". It is interesting to note that in ancient Egypt medical students were drawn from all classes, industry and talent being the only passport to the schools. Not that all were models of industry, as the following reproof from an ancient Egyptian writing indicates: "It has been reported to me that thou neglectest thy studies and seekest only thy pleasure, wandering from tavern to tavern. But what profiteth the odour of beer? Avoid it, for it drives people away from thee, impoverishes thy wits, and likens thee to a broken oar upon the deck of a ship." During the Brahminic period of ancient Indian history, which has been described as the golden age of Indian medicine, the selection of medical students was on a caste basis, and they had a six years' course with both academic and bedside instruction, as well as teaching in the practice of surgical procedures. An admirable feature, which many Australian medical students will envy, was a rule that no teacher might instruct more than four to six pupils at the same time. In China regular medical schools were organized over a thousand years ago, and amongst other things the teachers were liable to punishment or dismissal not only for neglecting their teaching, but also for failure to make their students work. In the fourteenth century under the Yuan dynasty women doctors were first given recognition and special arrangements made for their examination. Later, the medical colleges disappeared, with a decline in Chinese medicine, and training came to be on an apprenticeship basis. Little seems to be known about the instruction of medical students amongst the ancient Jews beyond the indication that physicians took private pupils. The medical training in ancient Greece is more familiar ground, and at least in the Hippocratic school reached a standard both academically and ethically higher than any before modern times. The Hippocratic Oath,

¹ Brit. M. J., February 11, 1956.

² Proc. Roy. Soc. Med., October, 1955.

taken by the student before his admission to the ranks of the practising profession, is well known; amongst many admirable provisions it ensured a continuance of the teacher-student relationship on a high level in its vow "to regard my teacher in this art as equal to my parents". In Rome medical knowledge was transmitted from father to son, or to a relative or friend in the early days. Later Greek medicine came to Rome, and the Greek doctors taught any who had the necessary ability. The teaching was uncontrolled legally, and the results were unsatisfactory in many cases. The period of study varied widely. Galen, it is said, devoted eleven years to his medical studies, whilst the notorious charlatan Thessalus obtained large numbers of pupils by promising to turn them into doctors in six months. Serious students of medicine learned chiefly by accompanying their teachers to the homes of the patients. Even here there were outlaws, for Galen is said to have told his pupils to be quiet when entering the sickroom, to be clean and to attend to their hair, not to eat onions or garlic before visiting a patient, and not to drink too much wine, lest they annoy the sufferer by the offensive odour from their mouths and "stink like goats". Among the Arabs in the earlier period of Islam, we are told, the pupils attending the teachers in the mosques were encouraged to discuss their teachers' propositions with great freedom; these lectures were free and open to all. Later, Arabian institutions of learning were founded, which closely resembled universities, and here medicine was taught in conjunction with other sciences. At this period the three courses of training open to a medical student were instruction under the personal supervision of a senior physician, attendance at a medical teaching establishment, and finally teaching in one of the many medical schools attached to hospitals. In Europe in the Middle Ages the student was a member of a very special section of society, and medical students shared this common background. Dalrymple-Champneys gives us a detailed and quite vivid picture of the mediæval student, whose outstanding qualities, on the surface at least, appear to have been poverty and a wild life; but doubtless there were many whose quiet life and industry qualified them for obscurity. Certain it is that right up to the nineteenth century, although serious-minded men were making real contributions to the development of medical thought and practice, the wildness of medical students came into prominence from time to time, notably in their efforts to obtain subjects for dissection. Medical apprenticeship was the usual way of obtaining training, the pupil living with his master and often performing the menial offices of the household. Apparently Dickens's picture of the medical student in Bob Sawyer and Ben Allen is not far astray from the contemporary fact; although, as Dalrymple-Champneys puts it, they were "a mixed lot, as always, comprising all gradations from the waster to the man with a mission". One important change which took place mainly in the nineteenth century was the increase in age at which medical education, and indeed university education of all kinds, was started; the undergraduates of previous centuries, particularly in the mediæval period, were exceedingly young in many cases. Dalrymple-Champneys points out that this change naturally affected both the customs of the students and the kind of discipline necessary to restrain and guide them. On the other hand, an opposite movement was taking place in the United States

by the end of the nineteenth century. Previously in many universities of the New World the medical students had been for the most part men who had already been pursuing other occupations, and as mature students were paying their way through their medical course. Although the age trend was reversed, the habit of working his way through medical school is still followed by many young American students, and is, of course, not unknown in Australia.

Another important aspect of this picture of the medical student is the significant contribution that he has made to research. This will come as a surprise to many, but there is a striking historical background to the increasing practice in modern medical schools of encouraging undergraduates to engage in original investigative work. In two recent papers, William C. Gibson¹ has brought to light some quite remarkable facts about medical students who have made major contributions to medical and scientific knowledge in their student days. He brings forward over forty names, mostly of men who went on to earn for themselves an outstanding place in medicine. In many instances, however, it is on the work which they did as students that their fame rests. The most that we can do here is to list some of the most important results of medical student investigation: Humphry Davy's discovery of the anæsthetic properties of nitrous oxide; Thomas Young's investigation of the variation in the shape of the lens of the eye during accommodation, for which he was elected a Fellow of the Royal Society at the age of twenty-one years while still a student; Edward Jenner's conception of vaccination, gained from his questioning of a milkmaid during his apprenticeship; W. G. MacCallum's work on the life cycle of the malarial parasite; the side-chain theory of Paul Ehrlich; Claude Bernard's research into, first, the secretory nerves to the salivary glands and, second, the digestive function of the gastric juice; Walter B. Cannon's work on the investigation of the digestive tract by X rays; the discovery of the insulin-secreting cells of the pancreas by Paul Langerhans; Ivar Sandström's discovery of the parathyroid glands, first in the dog and then in man; important basic contributions to neurology by Sigmund Freud and Charles Sherrington; William Harvey's first observations on the heart and circulation, made while he was a pupil of Fabricius in Padua; Jan Swimmerdam's discovery of the red blood corpuscles and of the valves in the lymphatic vessels; the development in the mind of John Shaw Billings of the idea which led to the surgeon-general's library and to its unique catalogue. Professor Liebow, in the paper to which we have previously referred, emphasizes the value to the student of investigative work. Not many will produce the results of the giants of medicine of whom Gibson writes, but the training will be invaluable. Its importance to those who are to go on in the field of academic and research work needs no comment, but, as Liebow points out, the beneficial effects of the preparation of a thesis on investigative work will extend far beyond the actual problem in hand. "It provides experience in how to distinguish what has been *proved* from what has merely been asserted. It teaches the physician to be hesitant in accepting at face value the highly coloured advertisements that will soon come pouring over his desk. It often creates a desirable

¹ *Pub. Health Rep.*, October, 1955; *Scientific Monthly*, July, 1955.

and persisting attitude of mind: intellectual curiosity, once challenged, tends to remain stimulated." Liebow quotes Samuel C. Harvey as saying: "Probably the lack of initiative and the absence of a sufficiently demanding intellectual curiosity is responsible for more poor practice than any other one thing." Thus, Liebow comments, the benefits of the thesis work become manifest as much in the competence of the general practitioner as in the research scientist. In the light of this, it is important to note one fact in the report of the fortieth session of the National Health and Medical Research Council, prepared by Dr. W. F. Simmons, the representative of the Federal Council of the British Medical Association in Australia on the National Health and Medical Research Council. Among the amounts of money made available for disposal on the recommendation of the Medical Research Advisory Committee of the Council is an amount for grants to universities having medical schools. This money is used to support preliminary research at the undergraduate level, the very thing to which we have been referring. The committee feels that the present grant is inadequate, and that it should be increased to £2500 for each school. This seems a modest enough sum for such important work, which can be expected to bring in large dividends, and it is to be hoped that a sympathetic ear will be lent to the committee's recommendation. There is a good deal to be said for Gibson's comment: "The inquiring, restless mind of the uninhibited undergraduate is still our greatest asset in medicine and the greatest deterrent to smugness in research."

Current Comment.

NUCLEAR SEXING.

In 1949 M. L. Barr and E. G. Bertram showed¹ that in man and some other animals the resting nuclei of most tissues in females but not males contained a special mass of chromatin, the sex chromatin, which is a distinct round body usually located against the inner surface of the nuclear membrane. M. L. Barr has now given a short review² on the bearing of the sex chromatin on errors of sex development. B. Lennox has given a much longer review³ on present knowledge on the sex chromatin. Barr believes that the female sex chromatin represents special portions of the two X chromosomes that adhere to each other. The sex chromatin is not affected by sex hormones. Many cells from the body can be used to study sex chromatin, and cells from the Malpighian layer of the epidermis are very suitable. The female sex chromatin is only about 1μ in diameter, so the preparations must be of high technical quality. The characteristic material of the sex chromatin is deoxyribose nucleic acid (DNA). The cells of pathological proliferations retain the sex of the host except in some teratomata. In a small proportion of nuclei of neutrophilic polymorphonuclear leucocytes the sex chromatin segregates as a drumstick-like mass and can be seen in Romanovsky-stained blood films. Much experience is required to recognize these.

At the present time nuclear sexing has only one application of major importance in human medicine, in the study of intersexes and some related conditions. These conditions are gonadal dysgenesis, the main types of hermaphroditism (male pseudohermaphrodite, female pseudohermaphrodite, and true hermaphrodite) and congenital adrenal virilism. In gonadal dysgenesis, one form

of which is Turner's syndrome, the patient is clinically female as to the external genitals and the presence of a uterus and Fallopian tubes. There is no functional germinal tissue present. In animals when the gonads are removed early in development the genital organs develop along female lines—apparently an androgenic hormone is necessary for the maturation of the male sex organs. When the determination of the sex was made by skin biopsy in these subjects a very large proportion were found to be genetically males. However, patients must be considered as females, clinically and socially, and oestrogens should be given.

Male pseudohermaphroditism shows the presence of a testis, but the remainder of the reproductive system is of an intersexual nature, near male to almost normal female. There is the male type of nucleus. Nuclear sexing is useful in the newborn to fix the sex when there is hope of reconstructing male genitalia. Female pseudohermaphroditism is much rarer than male. Its recognition by nuclear sexing is again useful when an operation can reconstruct female genitalia. In true hermaphroditism both ovarian and testicular tissues are present. This is a very rare condition. The subject may be either male or female genetically and show or not show the sex chromatin. As in other types, a patient with female nuclei may more appropriately live as a male and vice versa. It has been suggested that some of these subjects have not XX or XY chromosomes, but XXY. The most important class of case to be recognized is congenital adrenal virilism, for specific treatment can be very effective in these cases. Cortisone restores normality, but if the child is not treated there is progressive masculinization and the patient may die in adrenal crisis. Adrenal virilism is by far the commonest cause of intersex in genetic females. The determination of the presence of sex chromatin in the cells is a great aid in diagnosis, and treatment can follow early. The origin of teratomata has long been a matter of dispute. An examination of ovarian teratomata showed all to have female nuclei, but in testicular teratomata, examined by Lennox, four of eight examples were female. A pineal teratoma in a boy had typical female nuclei. Others have found similar results, which leaves wide open the field for theorizing as to their origin.

Another suggested application of nuclear sexing depends on the use of the desquamated cells found in amniotic fluid to determine the sex of a fetus. C. J. Dewhurst⁴ has made a valuable report on this procedure. He examined the cells in 20 specimens of *liquor amnii* obtained between the twenty-sixth and forty-second weeks of gestation by artificial rupture of the membranes or at Caesarean section. In 18 subjects (10 male, eight female) the sex of the fetus was predicted accurately; in the other two subjects suitable nuclei were too few to permit any forecast. This appeared to establish the accuracy of the method, and it was decided to test the practicability of using the method to determine the sex of the fetus before birth, by obtaining material from abdominal paracentesis between the thirty-second and thirty-sixth weeks of pregnancy. Twenty patients were selected for this. Only 13 suitable samples of *liquor amnii* were obtained, but in all these cases the sex of the fetus (male in six cases, female in seven) was predicted correctly. Of the remaining seven cases no fluid was obtained at all in three, a small amount of blood-stained fluid in three and pure blood in one; one of the patients went immediately into premature labour at the thirty-sixth week of gestation.

These results indicate, as Dewhurst points out, that the sex of the fetus can be accurately predicted by careful examination of the nuclei of epithelial cells in the amniotic fluid. Difficulties in interpretation were due to cell shrinkage simulating sex-chromatin masses and to debris partly obscuring nuclear details. The finding of sufficient nuclei with good definition was sometimes difficult and time-consuming and sometimes impossible. These are technical difficulties, the practical importance of which cannot be assessed from such a small series. The important

¹ *Nature*, Volume 163, 1949.

² *Canadian M. A. J.*, March 15, 1956.

³ *Scottish M. J.*, March, 1956.

⁴ *Lancet*, April 21, 1956.

question, however, is whether the amniotic fluid can be obtained with perfect safety before term. Dewhurst's experience here is not reassuring, even though it was not followed by any obvious serious consequences. He states that no method other than *paracentesis uteri* of obtaining the *liquor amnii* before term seems possible, but the theoretical risk is always present of injuring foetus, placenta or uterus with the needle. We may well agree with him that no risk at all can be justified for the purpose of predicting what will soon be known for certain.

RADIOACTIVE IODINE IN THYROTOXICOSIS.

The diagnosis of thyrotoxicosis can usually be made on the history obtained from the patient and on the strength of the clinical findings. Laboratory tests act as confirmatory tests, though they are not sufficiently reliable to be either diagnostic of abnormality or reassuring of normality in the absence of other findings of a positive nature. The air-breathing test for estimation of the basal metabolic rate is notoriously capable of wide fluctuations according to the personality of the subject and the technique of operation. The determination of serum cholesterol level is rather more reliable, though especially valuable in the diagnosis of myxoedema. It may be fairly stated that if the clinical findings and the history are equivocal, the determinations of basal metabolic rate and serum cholesterol level are not very helpful in the diagnosis of thyrotoxicosis. If the effects of the disease are insufficient evidence of thyrotoxicosis, it is still possible to elucidate the role of the thyroid gland by a study of its own particular thyroid metabolism. This last is specifically concerned with the physiological fate of iodine, and hence study of the metabolism either of radioactive I^{131} or of serum protein-bound iodine gives some indication of the activities of the thyroid gland. Presumably the rate at which the follicular cells of the thyroid pick up one of the raw materials, I^{131} , for the manufacture of thyroid hormone is a fair reflection of the rate at which the thyroid hormone activates the body cells. Examination of the serum protein-bound iodine presumably will indicate the level of circulating active thyroxine.

W. H. Beierwaltes¹ has recently discussed the value of these determinations in the diagnosis of thyrotoxicosis. Normal value of I^{131} uptake after administration is 10% to 50% after twenty-four hours, and in conditions of hyperactivity of the thyroid this may be raised up to 90%. The normal amount of protein-bound iodine is 3.5 to 7.0 microgrammes per 100 millilitres of serum, and in states of hyperactivity of the thyroid this may be raised to 40 microgrammes per 100 millilitres. Misleading results from the determination of these levels occur if a patient has previously received iodine in any form, and this includes cough mixtures or even vitamin preparations and X-ray contrast media. An accurate determination of protein-bound iodine is particularly difficult, and levels are unstable. However, using Barker's distillation method, P. Friis² by careful technique found that the estimation of protein-bound iodine was quite accurate. The standard deviation for repeated determination of the same serum in six different subjects was in the order of *plus* or *minus* 0.44 microgramme per 100 millilitres of serum.

Beierwaltes discusses the way in which the two iodine estimations may help in the differential diagnosis of thyrotoxicosis. A person with exophthalmic goitre receiving iodides may have a depressed I^{131} uptake and an elevated protein-bound iodine value. Both values may be normal if the thyrotoxic patient is receiving propylthiouracil. The I^{131} uptake may be increased even if a thyroid goitre is not hyperactive. In the presence of thyroiditis the protein-bound iodine value may be raised, but the I^{131} uptake is usually depressed. Both estimations give thyrotoxic-like levels in pregnancy, though neither

estimation departs from the normal in the presence of non-thyrotoxic congestive cardiac failure. Unfortunately in thyrotoxic congestive cardiac failure the protein-bound iodine value may be lowered from thyrotoxic values owing to the administration of mercurial diuretics. Alcoholic hepatic cirrhosis may result in high I^{131} uptake. In the presence of *thyrotoxicosis factitia* the protein-bound iodine value is elevated and the I^{131} uptake depressed. In other conditions which may simulate thyrotoxicosis, such as leucæmia, polycythæmia, acromegaly and dyspnoeic lung and heart conditions, the iodine levels are undisturbed.

A. H. Berg and K. F. Stöa¹ have made a clinical evaluation of the I^{131} excretion test. The excretion of between 13% and 35% in the urine in twenty-four hours after the administration of eight millicuries of I^{131} by mouth is considered to be normal. Out of 78 patients with clinically certain thyrotoxicosis, the I^{131} excretion was below 13% in 62. Of the 16 who did not give abnormal values nine had previously received treatment. The result of the test was thus positive in 90% of thyrotoxic patients. In patients with myxoedema the test was less certain.

Conclusions to be drawn from these various papers are that in some circumstances both the I^{131} uptake or excretion tests and the serum protein-bound iodine estimation may be of value in the differentiation of thyrotoxicosis. However, the results are subject to error due both to unknown causes and to fluctuation in the multiple facets of iodine metabolism.

LYMPH NODE IRRADIATION WITH RADIOACTIVE GOLD.

THE use of radiotherapy alone as a cure of pulmonary neoplastic disease has not been successful, though such treatment may be preferred to surgical methods when the aim is to prolong a still relatively useful life for a few months. Carcinomata are usually considered to be inoperable if there is clinical evidence of lymph node spread despite the local nature of the original neoplasm in the lung. If the lymph nodes could be effectively treated when the original neoplasm was removed, the outlook, at present dismal, might sometimes be improved. Radiation from external sources is unsatisfactory because of the inability to apply the treatment specifically to the affected or suspected lymph nodes. An effective whole or part body exposure to radiation is not highly practicable. A method is needed in which the lymph nodes would specifically receive the radiation. Such a method was devised some few years ago, and is still in the stage of experiment; no widespread application has been made. The method lies in the propensity of the lymphatic system to take up foreign intercellular material and to deposit the same in the lymph nodes. In this case the material is radioactive gold Au^{198} in colloidal form. Most of the radiation resulting is that of β rays, which have low penetrating power, so that the metal must, to be effective, come into close contact with the malignant cells. Experimental evaluations of the possibilities of this method of treatment have been made by H. B. Wheeler, W. E. Jaques, M. B. Allen, M. Soltes, V. J. O'Connor and H. Black.²

Dogs were employed as subjects, and silver-coated colloidal gold Au^{198} was employed in both endobronchial insufflation and submucosal injection into a lobar bronchus. The gold solution had an activity of from twenty to forty millicuries per cubic centimetre. In eight animals the gold was introduced as a spray during bronchoscopy. Autopsy revealed severe focal damage to the lung parenchyma, so that the submucosal route was used thereafter. Injections of from five to twenty-five millicuries were made in seventeen dogs, into the right upper lobe bronchus. Two dogs developed hydrothorax, and mediastinal oedema and necrosis were found in three others. No serious parenchymal damage was found at autopsy. Lymph nodes

¹ Ann. Int. Med., January, 1956.

² Scand. J. Clin. & Lab. Invest., 7: 4, 1955.

¹ Scand. J. Clin. & Lab. Invest., 7, Supplement, 20, 1955.

² Surg., Gynec. & Obst., February, 1956.

with a large radioactive content were enlarged and congested, and some were necrotic. No macroscopic abnormality was found in other organs. After submucosal injection the microscopic changes were confined to the immediate area of injection and to the lymph nodes. The latter showed considerable changes often with advanced fibrinoid necrosis. Active nodal regeneration was noted as early as one week, but was not well developed for three weeks and was almost complete eight weeks after treatment. Pathological changes were not uniform in extent in single nodes, and it would appear that the Au^{199} reached the gland in succeeding waves of dispersion. Usually the extent of lymph effect varied with the proximity of the gland to the site of injection. Radiation effects were found very far dispersed throughout the whole lymph field. With injection by the submucosal route the extent of dosage varied with the dosage of Au^{199} . Some microscopic mild kidney changes were found associated with the presence of Au^{199} , and slight changes were discovered in the spleen, liver and thoracic vertebral marrow. In all respects the pick-up of gold administered by endobronchial insufflation was less effective. After submucosal injection only one dog developed signs of illness, there being severe persistent cough and sluggishness. This dog had received the maximum dose of 100 millicuries of Au^{199} , and the dog at autopsy had evidence of organizing pneumonitis. The authors suggest that this method of treatment might usefully be employed for the irradiation of small metastatic lymph deposits before these are detectable. The technique appears to be safe and would best be employed from seven to ten days before resection. The use of such a method in more advanced cases is likely to be less successful owing to lymph block and to the size of the secondary growth. The direct injection of Au^{199} into inoperable tumours may be valuable as a palliative measure.

CHOLESTEROL AND FATTY ACIDS.

It has been claimed by many workers that there is some relation between the intake of fatty acids in the food and the degenerative changes with deposition of cholesterol seen in the intima of blood vessels, particularly the coronary arteries, in atherosclerosis. The evidence must be indirect, for atherosclerosis is a slowly developing condition and it is not yet possible to diagnose it in its early stages. The masterly survey given by Ancel Keys in 1953 of the relation between the incidence of coronary disease and fat intake in many countries of the world and in different levels of society leaves little doubt that the two are related. This survey was discussed at length in these columns on January 9, 1954. Earlier observations, arriving at the same conclusion were discussed in the columns of "Current Comment" of April 4, 1953. There have been several suggestions that the consumption of animal fats, which contain a very low proportion of unsaturated fatty acids with more than one double bond, is more prone to lead to atherosclerosis than is the consumption of vegetable fats, which may contain a considerable proportion of unsaturated fatty acids. The evidence adduced was not very convincing. Recently B. Bronte-Stewart, A. Antonis, L. Eales and J. F. Brock have studied the effects on serum cholesterol level of feeding different fats. In a long letter to the editor of *The Lancet* H. M. Sinclair¹ makes extensive claims about the effects of deficiency of fatty acids with several double bonds on the incidence not only of coronary disease but also of several other conditions including carcinoma. In a later number of *The Lancet* Ancel Keys severely criticizes the suggestions of Sinclair. Bronte-Stewart *et alii* showed that the widely differing interracial incidence of coronary disease in the multi-racial community residing in the Cape Peninsula in South Africa was associated with a parallel difference in the mean serum cholesterol levels.

There was also a parallelism between the intake of animal fat but not vegetable fat and serum cholesterol levels. They fed volunteers of various races with different fats and oils and studied the effects on serum cholesterol levels. Fats with a high proportion of unsaturated fatty acids depressed the serum cholesterol levels. The experiments lasted for a short time only and there were few subjects. There is no indication that the unsaturated fatty acids will keep the serum cholesterol content down. Sinclair claims that chronic relative deficiency of poly-ethenoid fatty acids—essential fatty acids so called—is responsible for a number of conditions in man including atherosclerosis and certain cancers. He postulates that when there is extreme deficiency in the body of the essential fatty acids, cholesterol is esterified and more saturated fatty acids are synthesized in the body, and that these abnormal esters are not readily disposed of and tend to be deposited in the tissues. According to Sinclair atherosclerosis might be regarded as a chronic deficiency of arachidonic acid. He claims that the increased use of vegetable fats hardened by hydrogenation in the production of margarine and shortening and the decrease in the extraction rate in bread removing the unsaturated fats with the germ set up a relative shortage of essential fatty acids. He does not give any evidence that there is deficiency in man or that, should a relative deficiency occur, the various conditions such as coronary disease, cerebral thrombosis, seborrheic eczema, peptic ulcer, disseminated sclerosis and certain cancers would result. Sinclair is a very prominent worker in nutrition, so that notice must be taken of his claims.

Ancel Keys has given a careful and detailed criticism of the claims made by Sinclair. He points out that it is not easy to prepare a diet deficient in linoleic and arachidonic acids, and when such a diet is fed to animals nobody has noticed atherosclerosis. It is generally believed that it is impossible to prepare a diet acceptable to man over any long period and deficient in the so-called essential fatty acids. He points out that his experiments with man show that increasing fat intake—any fat—causes a rise in blood cholesterol content, while isocaloric substitution of fat with carbohydrate causes a continued drop in blood cholesterol level which rises again when any fat—animal, vegetable or marine—is given. He shows, too, several marked inconsistencies in Sinclair's arguments. It cannot be said that there is yet any conclusive evidence that unsaturated fatty acids play any part in preventing atherosclerosis and the other conditions.

An important lead as to the part played by food fats in the causation of atherosclerosis is given by H. W. Fullerton in a symposium on cholesterol at the Nutrition Society.² Duguid has demonstrated that the pathogenesis of atherosclerosis is fibrin formation or thrombosis, the fibrin or clot becoming covered by the endothelial lining of the intima and incorporated in the vessel wall. Later cholesterol is laid down in the clot so that the cholesterol deposition is not the primary condition in the origin of atherosclerosis. The claims of Duguid were discussed in the columns of "Current Comment" in this journal on December 3, 1955. Fullerton determined the clotting time of the blood before and after a meal rich in fat. Whenever macroscopic lipæmia followed the meal, and it did in half the subjects examined when the meal contained 85 grammes of fat, there was significant reduction in the clotting time. Of nine subjects given the ordinary ward breakfast with 12 to 30 grammes of fat, only one showed lipæmia and reduction of clotting time. Alimentary lipæmia then reduces clotting time and may initiate the formation of clots in the vessels, especially when there is stasis. He points out that coronary atherosclerosis is most marked in the left coronary artery and that during systole of the ventricle the flow in the left coronary artery is arrested. The flow is less reduced in the right coronary artery. Cessation or reduction of blood flow will allow deposition of preformed fibrin on the arterial intima and this may initiate the process of atherosclerosis. Other factors are undoubtedly also concerned in its production.

¹ *Lancet*, April 28, 1956.

² *Lancet*, April 7, 1956.

¹ *Proc. Nutrition Soc.*, 1956, Volume 15, Number 1.

Abstracts from Medical Literature.

DERMATOLOGY.

Dermatitis Herpetiformis Treated with "Promacstin"

M. J. COSTELLO AND C. M. BANCKE (*Arch. Dermat. & Syph.*, October, 1955) state that "Promacstin" (acetosulphone) has been used extensively in relatively large doses and for long periods of time in the treatment of leprosy. Until recently sulphapyridine had been the only effective treatment of dermatitis herpetiformis. The authors believe that "Promacstin" administered in tablets by mouth controls the condition but does not permanently cure it. It has the advantage of being less toxic than sulphapyridine. The initial dose of "Promacstin" is three to four grammes daily, and the maintenance dose is usually about three grammes daily in divided doses. In those patients not completely relieved by this medication combined therapy of "Promacstin" and sulphapyridine has been more effective. This permits the administration of about half the amount of the maintenance dose of sulphapyridine. A combination daily dose of one gramme of sulphapyridine and two grammes of "Promacstin" has enhanced the effect of each. Most patients taking "Promacstin" develop an iron deficiency anaemia. It is therefore necessary to administer an antianemic iron preparation as a routine. The authors emphasize the importance of regular studies of the blood cell counts and urinalyses at the beginning of sulphapyridine therapy to rule out the danger of agranulocytosis. Sodium bicarbonate and adequate fluid intake are important to prevent renal complications. "Promacstin" was used successfully by the authors in twelve cases of dermatitis herpetiformis.

Use of Nail Polish Sealer in Treatment of Monilial Paronychia.

H. F. GARRARD (*Arch. Dermat. & Syph.*, October, 1955), to keep water and foreign particles from getting under the unattached nail fold, has used a nail polish sealer to seal this space. This acts somewhat as an artificial cuticle. The patient is instructed to apply the sealer upon arising in the morning with care to include the nail and the nail fold. The sealer is left on until bedtime, when it is removed with acetone. A medication consisting of 2% resorcinol and 2% salicylic acid in 70% alcohol is then applied under the nail fold with a toothpick. Other medications can be used in this way.

Alopecia Areata.

S. I. GREENBERG (*Arch. Dermat. & Syph.*, November, 1955), in a psychiatric survey of 44 adolescents and adults who sought dermatological treatment for alopecia areata of the scalp, found 73% to be psychoneurotic and 20% to be borderline or frank psychotics. Patients did not conform to any single personality type, but many of them tended to be withdrawn and passive. Depression or anxiety or both were frequently prominent.

In the great majority of these patients long-standing mental and emotional disturbance preceded the onset of alopecia. Reassurance may be the best treatment for alopecia areata. Psychiatric consultation may often be of great benefit. Frequent visits for chemical application and/or ultra-violet irradiation in the absence of adequate reassurance and explanation may produce greater anxiety and be harmful.

Topical and Systemic Use of Prednisolone.

L. FRANK AND C. STRITZLER (*Arch. Dermat. & Syph.*, December, 1955) have used prednisolone topically in concentrations of 0.25% and 0.5% with some therapeutic effect in those dermatoses which respond to hydrocortisone applied topically, though with less effect than 1% hydrocortisone ointment. Systemically, prednisolone is an active and potent corticosteroid. The dermatological spectrum seems to be very similar to that for hydrocortisone. Milligramme for milligramme, prednisolone is approximately four times as effective as hydrocortisone. In therapeutic doses it does not produce either sodium and fluid retention or potassium depletion. Patients can be treated with prednisolone on a non-restricted diet, and hypertension and sodium and fluid retention are not frequent complications. An initial dose of 40 milligrammes seemed to be therapeutically effective. A maintenance dose varied from 15 milligrammes to 25 milligrammes daily.

Pathogenesis of Hidradenitis Suppurativa.

W. B. SHELLEY AND M. M. COHN (*Arch. Dermat. & Syph.*, December, 1955) describe a technique for experimentally producing hidradenitis suppurativa in man and the histological observations made of lesions of less than seven days' duration. One axilla each of 12 normal adult male subjects was covered with perforated belladonna adhesive tape. The other axilla served as a control site. In every subject apocrine anhidrosis developed in the taped areas. Three of the subjects developed clinical hidradenitis suppurativa, the histological appearance of which was also considered to be diagnostic. Keratinous plugging of the apocrine sweat duct and severe inflammatory changes sharply limited to a single apocrine sweat gland unit were seen. As a result of experimental reproduction and histological study of sections of human axillary skin, hidradenitis suppurativa appears to be a bacterial infection of an obstructed apocrine sweat gland. In the presence of sweat retention, bacteria are able to produce a local apocrine infection in certain individuals.

Apocrine Sweat Retention in Man.

W. B. SHELLEY AND E. J. LEVY (*Arch. Dermat. & Syph.*, January, 1956) explain how Fox and Fordyce first reported two patients with a pruritic papular eruption of the axillae in 1902. The authors have made clinical and histological studies of five patients. Histologically the primary change is one of a follicular hyperkeratosis. The chronicity of the disease and its predilection for the female sex suggest a

hormonal aetiology. The histological study of cases of Fox-Fordyce disease revealed that this disease is characterized by apocrine anhidrosis, pore closure and sweat retention vesicles in the epidermis. These apocrine sweat retention vesicles, which can invariably be demonstrated in serial sections, permit a definite histological diagnosis of the disease. Analogy is drawn between Fox-Fordyce disease and miliaria rubra. The failure of therapy is a direct result of inability to inhibit apocrine secretion. The gland is immune to pharmacological measures and to irradiation.

Lupus Erythematosus.

R. H. MARTEN AND E. K. BLACKBURN (*Arch. Dermat. & Syph.*, January, 1956) have reviewed the clinical and haematological findings in 77 cases of various forms of lupus erythematosus. Haematological abnormalities were found in over half of the 66 chronic discoid cases, five of the six generalized discoid cases, all four subacute disseminated cases and in the single acute disseminated case. The significance of these haematological abnormalities in chronic discoid cases can be assessed only after a prolonged follow-up both clinically and haematologically.

Nummular Eczema.

A. I. WEIDMAN AND H. H. SAWICKY (*Arch. Dermat. & Syph.*, January, 1956) state that nummular eczema is encountered in the young and middle aged, equally divided between the sexes. The dorsa of the hands and fingers and the extensor surfaces of the forearms are most commonly involved, legs and thighs less so, and trunk and face infrequently. It is worse in the colder months of the year. The largest number of cases were observed among housewives and manual factory workers. Topical medications most frequently used were tars, "Vioform", zinc paste and aluminium acetate solution, shake lotions and other pastes. Most recently several patients have reported excellent results from hydrocortisone locally alone or in combination with antibiotics. It is suggested that nummular eczema may not be a disease entity at all, but a symptom complex caused by multiple aetiological factors, many of which remain obscure.

Antimalarials in Discoid Lupus Erythematosus.

R. W. LEEFER AND M. F. ALLENDE (*Arch. Dermat. & Syph.*, January, 1956) discuss their observations on patients treated with quinacrine, chloroquine and amodiaquin for discoid lupus erythematosus. With quinacrine the starting dose was 0.3 gramme daily. This was continued until the onset of skin discoloration and then lowered to 0.2 gramme daily; prolonged treatment was maintained with 0.1 gramme daily. Some patients had initial improvement after treatment for three months and the drug was omitted, but each had to be retreated for recurrence. One patient had the atypical lichen planus eruption of quinacrine sensitivity in the sixth month of treatment. Twenty-nine patients were treated with chloroquine; of these 22 improved or recovered entirely during treatment, but 12 relapsed in less than a

year and had to be retreated. The usual starting dose of chloroquine was 0.5 gramme daily for two weeks. Thereafter from 0.25 gramme to 0.5 gramme daily was maintained as tolerated by the patient. Patients who had a poor tolerance for antimalarials were put on amodiaquin in daily doses of 0.1 gramme for one week then continued on 0.2 gramme daily. In general the tolerance to amodiaquin was excellent. The authors question the curative action of these drugs. In the dosage used at present they feel that they do not produce cures and that relapses will occur although the remissions may last several months. The drugs appear to be safer and better than any known heretofore in controlling the disease, but require careful supervision. Both amodiaquin and chloroquine appear preferable to quinacrine. Relapses are successfully managed by retreatment.

UROLOGY.

Tumours of the Urinary Bladder.

M. M. MELLICON (*J. Urol.*, October, 1955) has made a review of 2500 vesical tumours from the case files of three large surgical clinics in New York City. He states that 95% of the primary vesical tumours developed from the epithelium and only 5% from the stroma. Of the epithelial tumours 81.1% were papillary, 7% non-papillary, 11.4% metaplastic (mainly squamous celled) and 0.5% glandular. Most of the non-papillary (solid) tumours and the metaplastic growths were of the infiltrating type. Only one epithelial tumour occurred in a child. The youngest adult so affected was aged twenty-two years. The oldest was aged ninety years. Males outnumbered females by four to one. Nine out of 65 excised diverticula contained a neoplasm, an operative incidence of 13.8%. The presence of an enlarged prostate sometimes obscured an accompanying vesical neoplasm. In this large series the neoplasms were usually described according to (i) their degree of cellular differentiation, for example grades 1, 2, 3 and 4, and (ii) the depth of penetration (A, submucosa; B, muscularis; C, perivesical; D, distant spread). A pure papilloma affected the mucosa only. Removal by endoscopic section is limited to those neoplasms which are readily accessible and can be ablated at one sitting. However, the great frequency of multiple recurrences after endoscopic treatment suggests the possibility of seeding resulting from manipulation of the instrument, the continued action of a carcinogenic agent in the urine or the coming of age of invisible tumours. Suprapubic segmental resection was useful for the management of broad sessile growths in mobile parts of the bladder. However, unrecognized regional lymph node involvement would spoil the result. In the bladder, recurrences were not uncommon, and there was a high incidence of recurrence in the abdominal scar; scrupulous care in the technique of operating will help to avoid such troubles. With large, penetrating tumours, particularly in the fixed parts of the organ, radium needles inserted by the suprapubic route may be useful. However, serious

functional disturbances of the bladder may follow. Cystectomy and transplantation of the ureters were performed for extensive surface involvement, for those with lesions on the trigone or at the bladder neck, and as a last resort in cases in which there was recurrence after the simpler methods of treatment. Theoretically, complete removal of the bladder should be ideal (if there are no metastases), but unfortunately serious troubles often follow the ureter transplantation. These are electrolyte disturbance, obstruction of the lower end of the ureter and pyelonephritis from infected reflux. Life with comfort was prolonged in only a few cases.

Priapism.

A. GIBBA (*Urologia*, April, 1955) states that priapism is a curious and rather rare affection, characterized by a painful and persistent engorgement of the corpora cavernosa of the penis, not connected with erotic excitement or sensations. The affection manifests itself most often between the ages of twenty and fifty years. The causes have generally been classified as (i) nervous, in subgroups of peripheral, spinal and cerebral origins, (ii) local and mechanical, in subgroups of vascular, traumatic, neoplastic and inflammatory, and (iii) systemic, in subgroups entitled inflammatory, dyscrasic and metabolic. The author describes a recent case in a young man, aged twenty-four years, which fell in none of the above groups, and therefore has to be described as idiopathic or essential priapism. Treatment was by repeated aspiration of clots from the cavernous bodies and the injection into those bodies of hyaluronidase. A large needle was used for aspiration, intravenous anaesthesia being used. This aspiration was helped by using normal saline; the last five cubic centimetres of the saline contained 200 units of hyaluronidase and were left in the corpus on each side. Relief was quick, and twenty-four hours later the procedure was repeated. The organ became flaccid and remained so for nearly a week, after which the patient was discharged. Some four months later he reported a resumption of normal, painless erotic erections.

Primary Renal Tumours of Childhood.

S. H. JOHNSON AND M. MARSHALL, JUNIOR (*J. Urol.*, December, 1955) have made a study of the cases of 54 children with primary renal neoplasms. These comprised 59 Wilms tumours (four of them being bilateral), three papillary adenocarcinoma and two renal cell carcinoma. The authors consider that the survival rate of patients with Wilms tumours will increase if the treatment is standardized to early transperitoneal nephrectomy with post-operative irradiation therapy. The use of intravenously administered nitrogen mustard in the immediate post-operative period seems to lower the mortality rate still further. The younger the patient and the shorter the duration of symptoms, the better the prognosis. Haematuria and abdominal pain are of grave import. When death occurs, it is usually within six months of the date of diagnosis. Patients who survive for two years may be considered

cured, with only rare exceptions. Although post-operative irradiation of the tumour site has been given prominence, this form of treatment leaves much to be desired. Seldom does a Wilms tumour recur in the renal fossa, but it appears rather as distant metastases, especially in the lungs. Total irradiation therapy is not feasible in infancy and childhood, because of severe depression of the bone marrow resulting in aplastic anaemia. Therefore a method must be sought which is lethal to distant small cellular metastases yet provides a low morbidity. Some good results have been achieved by intravenous injection of nitrogen mustard in doses of 0.4 to 0.8 milligramme per kilogram of body weight in the immediate post-operative period. This is followed in two to three weeks' time by irradiation of the operative sites. This preliminary work is of necessity a clinical study only, since in-vitro trial is not feasible because of the instability of nitrogen mustard in solution. Of the 59 patients, 18 had irradiation therapy only; these were patients with inoperable tumours, some with intensive metastases. Thirty-one patients underwent nephrectomy; 26 of these had post-operative irradiation, two pre-operative irradiation and two no irradiation at all. Intravenous nitrogen mustard therapy was used in 14 cases as adjuvant therapy. Of 49 patients who had some form of treatment, 14 are now living. Of the 14 patients treated with nitrogen mustard, seven are now living; of the seven patients who died, six had metastatic involvement at the time of this special therapy.

The Use of Recto-sigmoid Colon as a Bladder Substitute.

D. P. PAULL AND C. U. HODGES (*J. Urol.*, September, 1955) state that there is a general reluctance to remove the urinary bladder because of the complications following urinary diversion into the sigmoid colon. A safer method of diversion should encourage earlier cystectomy and a higher rate of cure. During the past two years the authors have used the technique described by W. H. Boyce and S. A. Vest in 1952 in connexion with the problem of vesical exstrophy. The essential features are the permanent separation of the urinary and faecal streams, relative simplicity of excretion and good functional results. This is accomplished by constriction of a single-barrel colostomy at the junction of the descending and sigmoid colon, and the subsequent use of the distal part of the recto-sigmoid colon as a bladder substitute to which the ureters are anastomosed. This operation is best performed in one stage together with total cystectomy to avoid delay in removing the malignant vesical neoplasm. Five cases are described. In all cases the patients recovered and were discharged from hospital. Vesical capacity ranges from 175 to 300 cubic centimetres. There has been no occurrence of pyelonephritis in this series, and no electrolyte changes, such as hyperchloraemic acidosis, have occurred. Blood urea nitrogen levels have remained normal. A daily irrigation of the colostomy has allowed control of bowel function, and colostomy bags have not been necessary. Continence of urine is achieved by the anal sphincter.

Special Article.

SOCIAL SECURITY DEVELOPMENTS IN AUSTRIA.

The following report on social security developments in Austria by Dr. Karl Niederberger was presented to the ninth general assembly of the World Medical Association at Vienna in 1955. It is published with the permission of Dr. Louis Bauer, Secretary-General of the World Medical Association.

The following survey of the medical situation in Austria is presented to the 9th General Assembly in order that the delegates may form their own opinions of the position and situation of the Austrian doctor within the framework of social insurance. A few preliminary remarks are necessary in clarifying the general situation.

Austria is a federal state consisting of nine federal provinces with Vienna being the federal capital and a federal province at the same time. Consequently, there are eight federal provinces in addition to Vienna.

The total population of Austria amounts to about 7,000,000 inhabitants, of which 1,600,000 live in the federal capital of Vienna, or 23 per cent. of the total population. On August 1, 1955, about 12,500 medical doctors were in active practice, 8200 of them in free practice; 1400 are employed in official capacities, and 2900 are undergoing hospital training.

The number of freely practising doctors consists of 5800 general practitioners and 3800 specialists, of whom 1300 are dentists. Among the doctors practising their profession 50 per cent. are under 40 years of age and 50 per cent. are over 40. Most of the doctors—39 per cent.—are of between 30 and 39 years of age. Since there are about 12,500 doctors to give medical care to the population, the ratio is about one doctor to 560 persons. Thus Austria has more doctors in proportion to the population than any other country in the world.

You will certainly be interested to hear that about 5000 of these 12,500 have settled in Vienna, or 40 per cent. of the total number. Thus in Vienna the ratio is one doctor to 320 inhabitants. This comparatively large number of doctors is in itself a great advantage for the medical care of the population. On the other hand, however, it raises great difficulties for the medical profession, as will be shown.

The legal status of the doctors has been regulated by the Medical Act of March 30, 1949. The Medical Act restricted medical practice exclusively to those legally entitled to it, i.e., medical doctors. The medical studies comprise 16 semesters. A doctor's degree cannot be awarded before the 12th semester. After graduation, the doctor *medicinae* bears the title "Arzt" (medical doctor). For independent practice of the medical profession, a legal training period in an appropriate hospital is required. After a three-year training period (as laid down in the Doctor's Training Regulation), the doctor is awarded the title "General Practitioner" by the Austrian Medical Board. After a six-year specialized training period, strictly required by the Specialist's Training Regulation, the doctor is awarded the title "Specialist" by the Austrian Medical Board; there are 17 groups of specialists. In Austria, all dentists are doctors of general medicine with a two-year specialized training period required by law. The professional duties of the doctors are laid down in the medical regulations. Every doctor entitled to practise may settle wherever he wishes. Admission to the Sick Fund, however, is only granted for certain locations of practice.

In each of the federal provinces the medical profession is represented by a medical board; the Austrian Medical Board at the seat of the federal government, however, represents the joint interests of all Austrian medical boards. The medical boards are legally public bodies.

The medical boards have the duty of protecting and furthering the joint professional, social and economic interests of doctors; of controlling the fulfilment of professional duties; and maintaining the professional reputation. Thus the medical boards are at the same time representative of the medical profession and its interests. Above all, they are entitled to set up and maintain joint institutions of welfare and assistance for board members and their widows and orphans. Moreover, they must conclude contracts in order to regulate the relations between the doctors and the protected persons. Bills which concern the interests of the doctors have to be submitted to the medical boards for scrutiny before being introduced into the legislative body.

Every Austrian doctor who is employed or self-employed has to be a member of the medical board, except the state or provincial health officers.

All members of the medical board must act according to the decisions taken by the medical board within the scope of its legal range of activities, as well as pay regular and exceptional membership fees as laid down in the regulation of fees. The various divisions of the medical board are the plenary assembly, the board of directors, the president and the vice-president, who are elected by a free vote.

The medical boards must insure fulfilment of professional duties and maintain ethical standards by a special disciplinary body. One may appeal to the senate from this ruling of the disciplinary body, and its decision shall be final. The disciplinary senate has the right to impose penalties if necessary, and to rescind the right to practise for a period up to one year.

Post-graduate medical education has to be provided by universities and medical scientific societies, partly also by medical boards.

All professional matters concerning the medical boards of two or more federal provinces, especially comments on laws concerning the medical profession, are within the range of activities of the Austrian Medical Board.

As mentioned before, the medical boards at the same time are representative of the medical profession and its interests, and thus their range of activities is very broad and comprises many responsibilities. Regulation of the relations between protected persons and the doctors by means of contracts is one of their most important and most difficult tasks.

In Austria, a legal health insurance has existed since 1888. In the beginning, it included only those segments of the population which were indeed in need of protection, but later on it was continuously extended to the greater part of the population so that it now covers about 80 per cent. of the Austrian population. All employees have to be insured without regard to their income. Certain self-employed persons must be insured, others may be.

In the beginning, the doctors had little interest in health insurance because they still had a sufficient number of private patients. But as insurance was extended more and more, medical practice within the frame of social health insurance became the most important part of a doctor's income.

The medical system was rather primitive in the beginning of legal health insurance. In the open country, freely practising doctors were recognized by the social security institutions by means of concluding a contract with every single doctor. In the industrial areas and towns, however, only salaried regional doctors and salaried specialists in out-patient clinics practised. There was no free choice of doctor. It was only after long years of endeavour that the medical profession succeeded in introducing in the towns a system of free practice for general practitioners who were recognized by the social security institutions. Thus free choice by the insured person of general practitioner and specialist came about and was recognized by the social security institutions.

After the Second World War, social insurance in Austria was reorganized by a temporary social insurance act in 1947. The doctors, who at that time had no effective representation of their profession and interests, were unable to exert any influence on the formation of the law. The regulation of the relations between the social security institutions and the medical profession, which was a result of this law, were therefore unsatisfactory. Thus, when in 1955 a temporary social insurance act was to be replaced by a new general social insurance act, the Austrian Medical Board tried as well as it could to achieve an appropriate influence in the formation of those regulations of the act concerning interests and rights of doctors. Since the rights and the interests of doctors were completely ignored in the bill of the Ministry of Social Administration, the Austrian Medical Board decided to take measures in order to make the public and the responsible authorities understand the seriousness of their demands. The measures taken by the Austrian Medical Board may be well known to many of the delegates present, since the foreign press reported in detail the measures taken by the Austrian medical profession in protecting their freedom and independence, rights and interests. The draft of the General Social Insurance Act contained regulations threatening the freedom of doctors, especially the regulation which provided that if a collective contract could not be achieved the contents of this contract should be fixed by a commission for an indefinite period.

Besides, the medical profession demanded that their own independence must be protected by appropriate means from the overwhelming power of the social insurance institutions since freedom and independence of the doctor is most essential for the confidence necessary between doctor and patient.

The medical profession of Austria on June 18, 1955, gave a demonstration in Vienna, in which about 4500 doctors, or more than one-third of all Austrian doctors, participated. The doctors came from the remotest parts of Austria. Some of them had to leave their homes as early as 2 a.m. by car or coach. The enthusiasm at this demonstration was indescribable. The demonstration was followed by an imposing march of doctors in their white coats along the Ringstrasse to the office of the Federal Chancellor where a resolution was presented. The Federal Chancellor, Ing. Raab, invited the doctors to present their wishes and demands directly at party conferences on the highest level.

When at the end of these conferences the interests of the doctors were not taken sufficiently into consideration in the governmental draft of the act, the Austrian Medical Board decided to go on a two-day protest strike on August 25th and 26th, 1955, and posted bills in order to instruct the public. The doctors realized with satisfaction that the population and the press, with hardly any exception, took the part of the doctors and supported them in their fight for freedom and independence. Indeed, at the same time they considered this to be a fight for the freedom of insured persons. As to how the strike was carried out, you will find the information in the *Oesterreichische Arztezeitung* which was given to you today.

This so-called protest strike was not a strike as such, but an action of protest. It is true that the surgeries were closed during these two days, but sufficient medical care was provided for urgent cases by an emergency service so that not a single complaint was heard. Likewise, in hospitals only an emergency service, similar to a Sunday service, was provided. The two-day protest strike created an enormous impression. The Austrian press commented upon the significance of this action of protest in a truly positive way and supported the doctors. The foreign press issued detailed reports about the protest strike of the Austrian doctors and the fight for their rights. *For the first time in the medical history of Austria, doctors had proved that if they are united and act together their endeavours will not be in vain. On the contrary, they are in fact capable of deciding their fate by themselves. In Austria, it was the first time that a free academic profession, in complete unity, proved to the public that they are not willing to be dictated to but are determined to decide their future by themselves.*

On the ground of this protest action, the medical profession was once more invited by the Federal Chancellor to submit its demands again at a meeting with the ministers, and the result was that in the final wording of the act the demands of the doctors were taken into consideration to a great extent, though not completely.

The following concessions were won by means of unity and insistence of the Austrian medical profession:

1. Freedom and independence of doctors was recognized and guaranteed by the General Social Insurance Act. Regulation of relations between the social security institutions and the medical profession is carried out in complete freedom of contract by means of contracts in accordance with the code of private law.
2. The freedom of choice of doctor by the insured and indirectly insured persons is guaranteed by the General Social Insurance Act.
3. Selection of the doctors to be recognized by the social security institutions and the conclusions of single contracts is carried out according to the regulations of the collective contract and in agreement with the competent medical board.
4. Sufficient legal protection against arbitrary and unjustified notice is granted all recognized doctors.
5. Unequal competition by out-patient clinics of the social insurance institutions will be eliminated. Persons insured have complete freedom of choice between doctors of out-patient clinics and those practising freely under the same conditions. Out-patient clinics can only be erected or extended if authorities deem it necessary, and in this case the boards for physicians and dentists have the right of veto.
6. The General Social Insurance Act provides provincial medical committees and one federal medical committee, in which all questions equally concerning the social security institution and the doctors practising independently shall be dealt with. In such cases, the medical profession has been granted the right to join in the discussion on all questions of social security concerning it.
7. The General Social Security Law guarantees a satisfactorily impartial settlement of litigations arising from single and blanket contracts. Provincial arbitration commissions and one federal arbitration commission will be established, the former consisting of one judge for each province, the latter of a board of three judges.
8. Unfortunately, no income limit for participation in the medical benefits scheme was fixed. The law provides, however, for a contractual settlement of this question. Participating doctors now have the right to accept, besides their social security fee, benefits from additional private insurance schemes.
9. We were unable to accomplish what the Austrian Medical Board desired, namely, a legal provision for admission of all doctors to the right of contract with the social security institutions. The government parties held that this question must be settled by contracts, and not by law. We succeeded in providing for another 500 doctors to be admitted in 1956. The question of further admissions remains to be settled by contract.

One of the foremost and at the same time most difficult problems the profession has to face is the admission of all doctors into contractual relation with the legal social security institutions. Great excitement and hard feelings were caused in the ranks of the doctors not yet admitted, and on the part of interns and assistant doctors because this demand was not fulfilled. A satisfactory settlement of this problem, which is of public interest, is still to be made by future contracts between the medical boards and the social security institutions as well as by government and parliamentary action.

Other claims of the doctors of Austria also are not quite satisfactorily settled by the General Social Security Law. It would take too long to discuss these questions in this assembly. But we must continue our fight for them in future negotiations. It is true that consideration of essential claims has created more favourable conditions for a contractual settlement of the relations between social security institutions and the medical profession. Further difficult negotiations, however, will be necessary to safeguard the rights and interests of doctors in the blanket contracts to be concluded by the medical boards and the social security institutions, thus creating conditions for better cooperation between doctors and legal social security institutions in the interest of the insured persons and of the health of the community.

On the grounds of its experience over decades, the medical profession of Austria approved the necessity of a legal system of social security in Austria. Yet, now as ever, it has to insist upon safeguarding the most personal rights of the insured person and the liberty and independence of the doctors, these factors being the foremost prerequisites of the necessary confidence relationship of doctor and patient.

Moreover, the medical profession of Austria must demand that reasonable fees be paid by the social security institutions for the services rendered in order that the doctor may be sure of a standard of living corresponding to his social standing, work and responsibilities. At present, the economic status of Austrian doctors is wholly unsatisfactory. Social security institutions announce the average gross income of a practitioner participating in the scheme as amounting to approximately 6000 Austrian schillings per month. At least 50 per cent. of this amount is accounted for by overhead expenses, thus leaving an average monthly income of about 3000 Austrian schillings. Private consultations will usually account for another 20 per cent. of a doctor's income, thus making up a grand total of 3600 Austrian schillings, i.e., 600 Swiss francs. With this amount, the doctor must meet expenses in case of illness, and provide for invalidity and old age and pay taxes. A great many doctors, however, do not even reach this level of income. *Rates of payment are extremely low.* The rate for a consultation by a general practitioner is from 4 to 6 Austrian schillings; this is not even 1 or 2 Swiss francs, as compared with a fee of 4 Swiss francs in Switzerland or 10 Swiss francs in Australia.

The situation of those doctors who are not given a contract with a legal social security institution is especially difficult. Very often these doctors do not know how to earn a living for their families. You can imagine how embittered these doctors are on account of the fact that

the medical board did not succeed in gaining the admission of all doctors to practice under the General Social Security Law.

Austria has the most recent social security law. It does not satisfy the profession. The original bill considered the rights and interests of the medical profession entirely unsatisfactorily. It was only due to the determined fight by a united and unanimous profession for its rights and interests that even partial consideration of these could be covered by the new law.

The medical profession of Austria is proud of having represented the ideals of the WMA in its bitter fight for the protection of the freedom and independence of the doctors in the social security system. The situation of the profession in Austria is not satisfactory yet. Therefore, we shall continue our fight until we have attained the position in social security deserved by the profession on the grounds of its work and responsibilities.

The medical profession of Austria asks the WMA for its moral support in this fight.

British Medical Association News.

ANNUAL MEETING.

THE annual meeting of the Tasmanian Branch of the British Medical Association was held at the Royal Society's rooms, Hobart, on February 25, 1956, Dr. W. K. MCINTYRE, the President, in the chair.

ANNUAL REPORT OF THE COUNCIL AND BALANCE SHEET.

The annual report of the Council and balance sheet, which had been circulated among the members, were adopted on the motion of Dr. R. Wall, seconded by Dr. L. H. Wilson. The report is as follows.

Membership.

Since January 1, 1951, the Branch membership has risen from 182 to the present figure of 236, a rise of 54. It is noted that the Northern Subdivision has passed the hundred mark with a membership of 103.

Obituary.

During the year our Federal President, Sir Archibald Collins, died. Your Council wrote to Lady Collins expressing the sympathy of members of this Branch.

Meetings.

The annual meeting of the Branch was held in the Royal Society room in Hobart on March 12, 1955. At this meeting the results of the election of officers and members of the Council were announced. Several amendments to the rules, mainly those of rearrangement of several sections, were approved. Three complimentary members were elected. Following the business at the annual meeting the Past President, Dr. J. B. G. Muir, gave an address which subsequently was published in *THE MEDICAL JOURNAL OF AUSTRALIA* on the subject of "Litigation in Medical Practice". No other general meetings have been held, all other general business having been considered by members at meetings of the subdivisions.

The reports of the Northern and Southern Subdivisions for 1955 are attached, and it is with pleasure that the Council has noted the increase in recent years in clinical and scientific activities of both the subdivisions.

Council.

Thirteen meetings of the Branch Council were held during the year, two being held in Launceston (in June and November).

Record of attendance was as follows:

Dr. W. K. McIntyre (President)	10
Dr. A. McL. Millar (Vice-President)	10
Dr. J. B. G. Muir (Past President and Federal Council Representative)	12
Dr. A. Ormond Green (President-Elect)	8
Dr. B. Hiller (Treasurer)	11
Dr. Franklin R. Fay (Honorary Medical Secretary)	11
Dr. L. N. Gollan (Federal Council Representative)	12

Dr. K. Melville Kelly (Honorary Secretary, Southern Subdivision)	11
Dr. H. Gatenby (Honorary Secretary, Northern Subdivision)	10
Dr. P. Braithwaite (Representative of Southern Subdivision)	8
Dr. K. J. Friend (Representative of Southern Subdivision)	12
Dr. Lindsay Jones (Representative of Southern Subdivision)	9
Dr. R. Wall (Representative of Northern Subdivision)	8
Dr. L. H. Wilson (Representative of Northern Subdivision)	7
¹ Dr. Thomas Giblin (Vice-President)	—
¹ Dr. W. M. Fletcher (Councillor)	2

Representation.

Our Federal Council representatives for the year were Dr. J. B. G. Muir and Dr. L. N. Gollan, both of whom have attended interstate meetings representing the Branch. Their efforts on our behalf are much appreciated. These two members have both been reelected to represent the Branch on the Federal Council for 1956.

Representatives of the Branch on other bodies during the year have been: Australasian Medical Publishing Company, Dr. W. E. L. H. Crowther; Road Safety Council of Tasmania, Dr. F. Phillips; Federal War Relief Fund (1939 War), Dr. A. Godfrey-Smith, Dr. T. Giblin, Dr. Franklin R. Fay; Medical Officers' Relief Fund (1914 War), Dr. B. Hiller, Dr. F. W. Fay, Dr. R. Whishaw; Tasmanian Physiotherapists' Registration Board, Dr. A. McL. Millar, Dr. T. G. Hogg; Tasmanian Post-Graduate Committee in Medicine, Dr. K. Melville Kelly; Tasmanian Health Education Council, Dr. G. Robble; Committee of Inquiry under the *National Health Act*, Dr. T. Giblin, Dr. A. Young, Dr. L. N. Gollan, Dr. R. Whishaw.

Committees.

Ethics Committee.—Members of this committee were Dr. McIntyre, Dr. Muir, Dr. Wall, Dr. A. Millar, Dr. Friend, Dr. Gollan and Dr. F. R. Fay. No meetings were held in 1955.

Newsletter Committee.—There were eight newsletters published during the year by Dr. K. J. Friend and Dr. K. M. Kelly. By means of it members have been kept informed of matters of current interest.

Publicity Committee.—Fortunately this year has been relatively quiet, and no public announcements have been needed. The committee consisted of Dr. Muir, Dr. Braithwaite, Dr. F. R. Fay, Dr. Gatenby and Dr. L. N. Gollan. There have been a number of occasions when provocative statements have appeared in the Press, but in most cases the committee has considered it wiser to remain silent than become embroiled in a public controversy over matters which are either petty or of a Federal nature.

Workers' Compensation Committee.—Dr. A. O. Green, Dr. Braithwaite, Dr. Friend, Dr. A. McL. Millar and Dr. F. R. Fay comprised this committee, which has a better report this year than last. Following a meeting with the underwriters early in the year about ophthalmologist and specialist services, the committee moved to get the whole of the schedule reviewed, as no alteration had occurred since 1952. The underwriters would not consider this, so after consultation with the subdivisions *re* action to be taken, a direct approach, in the latter half of the year, was made to the Chief Secretary. The Chief Secretary arranged a conference of representatives of the underwriters, Chamber of Commerce, Government Insurance Office, Employers' Federation *et cetera* and representatives of this Branch. After two meetings agreement was reached, and it is anticipated that a new schedule will be gazetted early in the new year. The features of the new schedule are: basic consultation rates similar to other States, that is 17s. 6d. at the house and 15s. at the surgery; a specialist fee for referred cases at £2 2s.; removal of corneal foreign bodies by an ophthalmologist at £3 3s.; and the more common of the individual procedures listed raised by about 15%. One of the barriers to successful negotiation was the recent introduction of legislation whereby the previous free medical treatment of workers' compensation cases at public hospitals has been replaced by a fee for services rendered—a move which has the support of the profession. The outcome of these negotiations is regarded as successful. It has been found impracticable at

¹Members of last year's Branch Council, which held two meetings in early 1955 prior to the election of the present Council.

the moment to insist that patients inform doctors prior to their treatment that they are workers' compensation cases, but in the coming year this may be taken up again.

Medical Fees Committee.—This committee, which consisted of Dr. J. B. G. Muir, Dr. T. C. Butler, Dr. K. M. Kelly, Dr. L. N. Gollan, Dr. L. H. Wilson, Dr. H. B. Gatenby and Dr. F. R. Fay, did not meet during the year. There were several inquiries by dissatisfied patients about their accounts, but inquiry from the practitioner concerned revealed, in all cases, that reasonable charges had been made for reasonable services. When this was pointed out to the patients concerned, they were also informed of the existence of this committee, but none elected to make use of it.

Rules Committee.—The Rules Committee, namely Dr. Braithwaite, Dr. A. McL. Millar, Dr. F. R. Fay and Dr. L. N. Gollan, completed their major task this year by arranging for the printing and circulation of the new book of rules, thus fulfilling a long-felt want in this Branch. Tenders were called for the job, and the book printed by The Mercury Press compares most favourably with those of other Branches. The cost to the Branch, as indicated in last year's and this year's balance sheet, was about 10s. per copy for the 750 copies produced. The expenditure was made up as follows: initial typing of rules, £34 4s. 6d.; final typing of corrected proofs and roneoing of 200 copies for information of members, £79 14s.; printing of 750 copies of rules in booklet form, £235.

General Practitioners' Group.

This special group of members had a successful year with a number of clinical and social meetings. The annual report of the group is attached.

General.

Hospital Policy.—The visiting staff at the main public hospitals still remain on an honorary basis in spite of the absence of any means test. There have been, however, two developments of interest—namely, (a) the charging of fees by the hospital for medical services on workers' compensation cases, which should provide sufficient revenue to pay the visiting staff and (b) the purchase by the Government of a private hospital in Hobart and Launceston to be run as a private annexe of the main base hospital. Another point of interest is the satisfactory standard of remuneration offered to a full-time specialist with high qualifications at a public hospital—namely, £3000 per annum. Your Council has felt for some years that the salaries offered to full-time and part-time specialists at these hospitals have not been in line with the service they perform.

Medical Act.—A new Medical Act has been gazetted in the last month of the year, incorporating many of the Association's suggestions in giving greater disciplinary power to the Medical Council. This body, besides being the registering body for practitioners in the State, has the power to investigate any complaints, by requiring witnesses to attend if necessary, and to censure or fine any practitioners deemed guilty of misconduct. If the Council decides a practitioner is guilty of infamous conduct, the Council may refer the case to a Supreme Court judge, who has the power to cancel or suspend the registration of the practitioner; the practitioner has the right of appeal. The new Act also provides for the admission of two alien doctors per year up to 1959, after they have done twelve months' training and have passed the necessary examination, but henceforth they are required to do only three years instead of the original five years in the Government service before being registered. The new Act also provides for annual registration of all medical practitioners and an annual registration fee. Failure to register after three months may result in deregistration.

Dental Act.—The Association put its views to the Legislative Council during this last quarter, when a Bill was before the House which, *inter alia*, would allow dental mechanics to fit dentures and deal direct with the public without supervision by a registered dentist. The Bill was narrowly defeated.

National Health Service.—The various aspects of this service seem to be working effectively. As usual, most of the deliberations this year have been about the Pensioner Medical Scheme and the rates of payment. Subdivisions considered the submissions of the Federal Council *re* changes in this scheme.

Annual Dinner.—The annual dinner was held at Wrest Point Hotel following the annual meeting. There were 37 members in attendance, and a pleasant evening was spent. Dr. Archdall was our guest.

Wages Board.—In the middle of 1955 the Doctors' Wages Board was called together, and Dr. Green and Dr. James

represented Dr. Dorney and Dr. Clemons, who were away. The increase in wages for surgery attendants is known to you all. At that time it became £11 17s. 3d. for a trained nurse in the first year of service, and rises occurred in the other categories also. Since then, cost-of-living adjustment has been restored as from the first day of February, 1956, which means that wages will rise by about 12s. 9d.

Medical Congress, 1958.—The possibility of providing adequate facilities for the Medical Congress, which may be held in Hobart in 1958, were considered at several meetings during the year. A final decision will be made in February, 1956. If it is to be held in Tasmania, all members of the Branch will have to take some part in the organization. The Council investigated the possibility of accommodating visiting members in a large overseas ship, but this could not be arranged.

Conclusion.

There have been many other minor matters dealt with by your Council during 1955; the average agenda for the monthly meeting contained about 40 items, which took about three hours to consider. Your Council feels that it can report that the Branch has run smoothly during the year, and has shown a very small deficit in spite of heavy expenditure.

W. K. MCINTYRE,
President.

REPORTS OF DIVISIONS.

Southern Subdivision Annual Report, 1955.

Office-Bearers and Membership.

Chairman, Dr. P. L. Dorney; Vice-Chairman, Dr. P. Nolan; Honorary Treasurer, Dr. A. D. Corney; Honorary Secretary, Dr. K. M. Kelly; Committee, Dr. R. Hudson, Dr. A. McArthur, Dr. K. S. Millingen.

There are now 134 members enrolled.

Meetings.

Seven general meetings were held, in addition to the annual general meeting. There was one special general meeting. The Executive Committee met four times.

Lectures and Demonstrations.

Talks: "Coronary Occlusion", Dr. A. J. M. Dobson; "Common Psychiatric Conditions", Dr. J. R. V. Foxton; "The Use and Abuse of Antibiotics", Dr. A. M. McArthur; "Common Conditions of the Ear in General Practice", Dr. G. J. Ramsay; "Chlorpromazine", Dr. Woodley; "Free Medicine in U.K.", Dr. Talbot Rogers; "Headache", Dr. K. S. Millingen; "The Undiagnosed Lung Shadow", Dr. P. Braithwaite.

Symposium: "Pain in the Face", Dr. R. Hudson, Dr. G. L. Hurburgh, Dr. B. Hiller.

Films: "Peptic Ulcer", "Hydatids", "Fluorine in Water".

The average attendance at meetings was 25 members.

General Business.

1. **Library.**—The sum of £100 was voted towards the establishment of the new Southern Library. In addition, members agreed to pay an annual levy of £2 2s. for the library. The library is now in operation and is situated at the Royal Hobart Hospital.

2. **Week-End Roster.**—Despite the usual annual argument, the week-end roster has continued to function as in the past, and a generally satisfactory service has been given to the public.

3. **Workers' Compensation.**—The attitude of the underwriters was criticized and the Branch Council urged to take direct action unless better conditions were obtained.

Executive Committee.

Four meetings only were held, as the business of a general nature for this year has been very light. Attendances were as follows: Dr. Dorney one (away in United Kingdom until November), Dr. Nolan three, Dr. Hudson three, Dr. A. D. Corney four, Dr. K. M. Kelly four, Dr. A. McArthur four, Dr. K. S. Millingen four.

Northern Subdivision Annual Report, 1955.

Office-Bearers and Membership.

At the annual general meeting on February 3, 1955, the following office-bearers were elected: Chairman, Dr. L. H. Wilson; Vice-Chairman, Dr. H. J. C. English; Honorary Secretary, Dr. H. B. Gatenby; Honorary Treasurer, Dr. D. B.

**BRITISH MEDICAL ASSOCIATION (TASMANIAN BRANCH).
Income and Expenditure Account for Year Ended December 31, 1955.**

INCOME.			EXPENDITURE.		
	£	s. d.		£	s. d.
To Secretarial Fees		312 0 0	By Members' Subscriptions .. .	1778	8 9
" Printing and Stationery .. .		415 13 2	" Interest—		
" Postages		34 18 4	Commonwealth Bonds .. .	43	16 6
" Wreath		1 1 0	Australasian Medical Publishing Company, Limited .. .	27	5 0
" Code Address		3 3 0	" Sale of Car Badges .. .	5	8 6
" Rental re Annual Meeting .. .		1 10 0	" Deficit	71	18 6
" Travelling Expenses		183 16 0			
" Capitalation Fees—					
Southern Division	60	0 0			
Northern Division	47	10 0			
Federal Council	224	14 0			
Australasian Medical Publishing Company, Limited .. .	214	0 0			
London: British Medical Association	385	10 0			
		931 14 0			
" Legal Expenses		40 19 0			
" Bank Charges		2 2 9			
		<u>£1926 17 3</u>			<u>£1926 17 3</u>

Balance Sheet as at December 31, 1955.

LIABILITIES.			ASSETS.		
	£	s. d.		£	s. d.
English, Scottish and Australian Bank, Limited .. .		229 7 2	Commonwealth Treasury Bonds, £1360 .. .	1327	5 0
Capital Account—			War Savings Certificates .. .	133	0 0
Balance	2027	6 7	Furniture	30	0 0
Australasian Medical Publishing Company, Limited .. .	107	0 0	Australasian Medical Publishing Company, Limited—		
	2134	6 7	Debentures	695	0 0
Less Deficit	71	18 6	Sydney	109	1 3
		2062 8 1		804	1 3
War Relief Contribution		2 11 0			
		<u>£2294 6 3</u>			<u>£2294 6 3</u>

Headquarters Fund Account, December 31, 1955.

LIABILITIES.			ASSETS.		
	£	s. d.		£	s. d.
To Balance, January 1, 1954 .. .	228	1 5	By Balance, December 31, 1955 .. .	234	3 9
" Bank Interest		6 2 4			
		<u>£234 3 9</u>			<u>£234 3 9</u>

Audited and found correct.
(Signed) ADAMS & BENNETTO,
Chartered Accountants (Aust.).

General Practitioners' Group: Receipts and Payments, October 31, 1954, to November 1, 1955.

RECEIPTS.			PAYMENTS.		
	£	s. d.		£	s. d.
Cash at Bank	62	15 9	Visiting Lecturers—		
Members' Fees—			Accommodation .. .	15	7 4
1955	37	16 0	Air Fares	32	16 0
1956	6	6 0	Dinner	70	16 0
Subscriptions—			Petty Cash (Postages et cetera) .. .	5	12 5
Post-Graduate Course	71	8 0	Balance at Bank, November 1, 1955 .. .	118	1 3
Post-Graduate Course Dinner .. .	53	0 0			
Bank Interest		1 7 2			
		<u>£242 13 0</u>			<u>£242 13 0</u>

Nathan; members of Executive Committee, Dr. K. Meagher, Dr. H. Roberts-Thomson, Dr. L. N. Gollan.

In December, 1955, the number of members enrolled for the Northern Subdivision was 103. This numerical strength entitles the subdivision to a representation of three councillors instead of two on the Branch Council.

Dr. K. W. McIntyre was chairman for this year, and Dr. R. Wall and Dr. L. H. Wilson were elected as councillors. Dr. Gollan and Dr. Gatenby were also members of the Branch Council.

Meetings.

There were one annual general meeting, nine monthly general meetings and 10 Executive Committee meetings during the year. The average attendance at general meetings was 26.

In addition, there was one special meeting called on behalf of the General Practitioners' Group of the State to hear Dr. Talbot Rogers, of London, on "Nationalized Practice of Medicine in Great Britain".

One general meeting was held at Latrobe and the remainder at the Launceston General Hospital who generously provided the theatre and supper each month.

Clinical Pursuits (in Conjunction with Monthly General Meetings).

These were as follows: March, Dr. Tunbridge, "Alcoholics Anonymous"; April, Dr. Hogg, "Orthopaedics in Great Britain"; May, clinical cases, "Vesico-Vaginal Fistula", Dr. Wilson; two cases treated by hypnosis, Dr. Engisch; June, Dr. Woodward, "Experiences with the Cancer Institute in Melbourne"; July, Dr. Craig, "Bone Tumours Demonstrated with X-Rays" (address); Dr. Roberts-Thomson, "Ergometrine in Third Stage of Labour"; Dr. Gatenby, "A Case of Diverticulitis with Chronic Fistula Formation"; August (Latrobe), Dr. Stegman, "A Baby with a Skull Defect"; Dr. Hunn, "A Case of Diabetes Mellitus in a Baby"; Dr. Gray, "A Discussion on Foreign Bodies in Bronchi"; Dr. Ferris, "A Series of Congenital Anomalies"; Dr. Young presented "An Unusual Case of Pneumonia"; September, Dr. Clemons, "Experiences with Some Surgical Clinics in the United States of America"; October (combined with A.D.A.), Mr. Vincent and Dr. Grove, "Antibiotics"; Mr. Marks and Dr. Wall, "Infant Feeding"; Mr. Rosenberg and Dr. Engisch, "Anaesthetics"; Mr. Deacon and Dr. Fletcher, "The Fluorides" (the meeting was well attended and most interesting); December, Dr. Fisher, "Random Observations on a Post-Graduate Tour of Great Britain".

It was generally agreed that these addresses and clinical demonstrations were of a high standard, and obviously a lot of time was put into their preparation. It was often felt during the year by the Executive Committee that they were worthy of a larger attendance.

Latrobe Meeting.—The numbers in attendance were a little less than the previous two years, but the north-west members made a very successful effort. The dinner in Devonport in the evening was well attended and enjoyed by all. Here the numbers increased on last year.

Annual Post-Graduate Week-End.

This was the twenty-ninth annual post-graduate week-end and attracted members from all over the State. Sixty-two attended the first evening on Friday, November 18, at the Launceston General Hospital. The visiting lecturers were Dr. F. R. Hone (physician) and Mr. J. R. Barbour (surgeon), both of Adelaide. Dr. Hone's lectures were on (i) "Head-ache", (ii) "Funny Turns" and (iii) "Peptic Ulcer". Mr. Barbour's were (i) "Management of Severe Injuries", (ii) "Painful Feet" and (iii) "The Use of Manipulations in the Consulting Room".

The consensus of opinion was that these lectures were well suited to the purpose of the week-end—that is, of primary interest to general practitioners.

The annual dinner was held at the Launceston Club. There was a record attendance of 57 (the previous record being 49). It was a most successful function.

Obstetrical and Gynaecological Section.

At the annual meeting held on February 10, 1955, Dr. M. Devenish-Meares was elected chairman for the ensuing year and Dr. R. Kenihan was elected honorary secretary.

During the year six meetings were held at the Queen Victoria Hospital and were quite well attended. Case reports and lectures were presented both by members of the section and by visiting lecturers. It is regretted that members of the

resident staff at the Launceston General Hospital do not avail themselves of the opportunity to attend the meetings, which are both interesting and instructional.

Representative of Private Practitioners of Launceston on Launceston General Hospital Board.

It has recently been the resolution of the Executive Committee that the meetings of the practitioners of Launceston with their representative be chaired by the Chairman of the British Medical Association (Northern Subdivision). Thus the election of this nominee will be, as usual, under the auspices of the British Medical Association.

Dr. H. M. Fisher is the capable representative at the moment. Dr. A. Pryde was elected to carry on in Dr. Fisher's absence during the year. Meetings are to be instituted regularly in conjunction with British Medical Association meetings.

Northern members are appreciative of the many hours put in each month by members of the Branch Council.

The notable success of the year is the increase in remuneration for medical attendance on workers' compensation cases.

During the year this subdivision expressed its confidence in the Branch Council in handling the question of "payment of hospital honoraries". The matter was much discussed during the year and did not reach fruition. However, the Northern members were well satisfied with the Branch Council's explanation for the postponement of operations.

The publicity subcommittee of the Branch Council was active again during the year and not without success. The Executive Committee feels that we do not as yet require the services of a public relations officer.

Federal Council.

Dr. L. N. Gollan is still one of the State's representatives, which keeps us in the North more in the picture of Federal Council business.

Executive Committee.

The Executive Committee met on 10 occasions during the year. Attendance was as follows: Dr. Wilson nine, Dr. Engisch six, Dr. Nathan six, Dr. Gollan seven, Dr. Roberts-Thomson eight, Dr. Meagher nine, Dr. Gatenby 10. Dr. Wall, Dr. Fletcher and Dr. Craig were coopted on various occasions.

GENERAL PRACTITIONERS' GROUP: SECOND ANNUAL REPORT, NOVEMBER, 1955.

This is the second annual report of the General Practitioners' Group of the British Medical Association, and I am pleased to say that we have had an extremely successful year, even though our membership has decreased from 39 to 35 this year.

A very successful post-graduate week-end was held on March 6 and 8 and has been commented on most favourably by those who attended.

Two new innovations included in this year's programme proved to be highly successful. These were clinical rounds held at the Royal Hobart Hospital on Friday, March 5, and a social function for members, wives and friends held at the Beach Hotel.

Visiting lecturers for the week-end were Mr. Lawson and Dr. King, both of Melbourne, who gave an excellent series of lectures. Our thanks also go to honoraries who conducted the clinical rounds. The feature of general practitioners giving lecturettes was again most successful.

There were 31 members present at the post-graduate week-end, and 30 people attended the dinner dance. Our guests for the evening were Dr. and Mrs. King and Mrs. Lawson.

The Hobart section of your committee has met on several occasions, and discussions have taken place in regard to the proposal by New South Wales that this group should take immediate steps to become a Tasmanian Faculty of the British College of General Practitioners *et cetera*.

The financial statement, which is attached, is reassuring, as the bank balance has increased from £62 15s. 9d. to £118 1s. 3d.

TREVOR JAMES,
Chairman.

ELECTION OF AUDITORS.

Messrs. Adams and Bennetto were reelected auditors for 1956.

ELECTION OF OFFICERS.

The President announced that the following had been elected officers of the Branch for the year 1956:

President-Elect: Dr. M. W. Fletcher.

Vice-President: Dr. A. McL. Millar.

Honorary Treasurer: Dr. Franklin R. Fay.

Honorary Medical Secretary: Dr. John Dobson.

Branch Councillors: Dr. Lindsay H. Jones, Dr. R. A. Lewis, Dr. A. W. O. Young, Dr. L. H. Wilson, Dr. H. J. C. English, Dr. R. Wall.

INDUCTION OF PRESIDENT.

Dr. W. K. McIntyre then introduced the incoming President, Dr. A. O. Green, and vacated the chair in his favour.

RETIRING PRESIDENT'S ADDRESS.

Dr. W. K. McIntyre then delivered his president's address entitled "Reminiscences of the Royal Army Medical Corps in Macedonia in the First World War" (see issue of May 26, 1956, at page 861).

Out of the Past.

In this column will be published from time to time extracts, taken from medical journals, newspapers, official and historical records, diaries and so on, dealing with events connected with the early medical history of Australia.

CERTIFICATES FOR SURGEONS OF CONVICT SHIPS.¹

Navy Office,
15 July, 1818.

Sir,

The Lords Commissioners of His Majesty's Treasury having in Mr. Harrison's Letter of 6th of May last observed that the Form of Certificate from you to enable Surgeons of Convict Ships to receive their gratuities has materially varied in recent cases from what was previously the practice, and that the Certificate of the Principal Surgeon of New South Wales had been altogether omitted and having decided that the old practice may be reverted to, of requiring the Surgeons of Convict Ships to produce a Certificate from the Governor of the Colony, stating the Number of Convicts landed in good health as well as his approbation or disapprobation of their treatment during the voyage, and also a Certificate from the Principal Surgeon there stating that no unnecessary expenditure was made of the Medicine and Necessaries Committed to the charge of the Naval Surgeon—we acquaint you therewith and request that you will in future furnish the Surgeons of the Convict Ships with Certificates in the form alluded to and that you will direct the Principal Surgeon of the Colony to grant the Certificate pointed out by their Lordships.

We are &c.,

Major General Macquarie,
Governor of New South Wales.

Correspondence.

THE NEW SOUTH WALES MEDICAL BOARD.

SIR: In your issue of February 18, 1956, you kindly published a letter from me, suggesting that the New South Wales Medical Board might render a useful public service by waiving the fee now charged for the registration of additional qualifications. Many doctors, of whom I am one, who are reluctant to pay the Board a fee to carry out its statutory duty of keeping the Medical Register accurate, might thus be encouraged to cooperate with it.

No action along these lines appears to have been taken so far; but with its annual reminder to doctors about the roll fee, which has just been sent out, the Board has included an "important notice" stating that it is concerned

¹ From the original in the Mitchell Library, Sydney.

with the fact that some practitioners are using "additional degrees, letters, descriptions; etc., many of which are non-medical (e.g., B.A., M.A., B.Sc., civil titles, military titles, etc.)" without first having sought the Board's approval to do so. The notice goes on to say that the use of unauthorized descriptions is a serious matter and could lead to a charge of infamous conduct. It invites the doctor to indicate to it details of "any . . . degree, . . . title status . . . or description which you use in relation to yourself as a medical practitioner or in the practice of your profession as such". If necessary, it is stated, further advice will be given.

It seems that the Board may have been stung by a remark of the Chief Justice during the hearing of the Listwan case. In answer to a point rather heavily made by Counsel about the penalties provided for the unauthorized use of degrees, his Honour remarked that in the preface to the Medical Register one member of the Medical Board was described as a B.A. and another as a knight, although these descriptions were not registered. I was at court and heard this exchange. In traversing this ground in his judgement his Honour did not mention particular instances.

If any doctor should now admit to the Board that he has been using unregistered titles, degrees and the like, I wonder what advice the Board will give him. Will it advise him to pay it an additional registration fee to register the companionship conferred by the Queen or the M.A. conferred by the University? Will it hint darkly to each highly respectable doctor that a charge of infamous conduct may be brought against him under the ill-drawn and ambiguous section 27 (2) (b) of the Medical Practitioners Act if he does not comply?

It is with much diffidence that I criticize the Medical Board, for which I have great respect and esteem, for I know that it does good work and gets little enough reward; but it appears to be reasonable to question whether the Board is placing first things first in concerning itself so earnestly with these rather banal and vexatious matters. Is there not work outstanding more worthy of its steel? Should it not be taking a lead in negotiating for uniformity among the States in the requirements for medical registration? Has it exerted its influence to secure some much needed overhauling of the Act? Has it determined its attitude to the duties imposed upon it by the 1953 Act, including that one of such dubious morality, deregistration of doctors for non-payment of the roll fee?

Yours, etc.,

185 Macquarie Street,
Sydney,
May 26, 1956.

DOUGLAS ANDERSON.

SIR: There are several questions which practitioners are reasonably asking about the Medical Board.

1. The Board, in a recent circular, refers to "a possibility of your name being removed from the register", this being obviated by their circular and our cheque. What is this mysterious force which hangs over the register, and which continually threatens to remove our names, and which needs five or six thousand circulars a year, and as many cheques, for its placation? Why are innocent practitioners so threatened?

2. Was this force active, and if so, how was it counteracted, in the first half of this century?

3. How does the Board spend the money which we contribute to it?

4. If a practitioner has the titles M.B. (registered), B.A., M.C., and wishes to place them all after his name, what danger is this to the public? Does the Board really believe that the public will thereby be induced to flock, for medical attention, to those who are B.A., M.C., but not M.B.?

5. If we must pay dane-geld to the Board, to keep our names "un-rubbed-off", could we not get from them a plain reminder, like that used by insurance companies, that our annual contribution is due? Why must they add, unctuously, "this reminder, while not required by law, is sent in your own interest, so as to obviate any possibility of your name being removed from the Register"? There may be some minor place for a bureaucracy. But is there any need that it be mealy-mouth'd?

6. Has the Board failed to learn the recent lesson, deservedly inflicted on it by the Court, in regard to an M.D. degree (unregistered)? Is it now courting separate lessons in regard to B.A., M.C. et cetera?

7. Is it fitting that in this litigious sport, the Board should be the hunter, while the medical practitioners are not only the hunted but also pay the expenses of the meddlesome fantastic sport of their persecutors?

8. Have we here an example of a redundant bureaucracy, striving to make work for itself, and inflate the importance of its own establishment? (The Federal Government is urging us to cut down wasteful expenditure.) Or is it an example of the loss of a sense of humour and of proportion?

9. If the Board is for the protection of the public, as we are told, why should not the public pay for it, the practitioner paying only the initial fee for entry of his name?

Yours, etc.,

V. J. KINSELLA.

235 Macquarie Street,
Sydney,
May 31, 1956.

SIR: I am sure that many practitioners must share with me my deep sense of offence on receiving from the New South Wales Medical Board, with their demand for the annual roll fee of one guinea, a small slip of paper headed "Important Notice to Practitioners".

Together with many others, I am proud that I possess a B.Sc. with first class honours in physiology. This degree was obtained as part of my medical training, and I regard it as part of my medical qualifications.

This represents to my mind the most extraordinary piece of bureaucratic interference that has yet come from this pettifogging government department which was foisted on us. Might I ask, sir, who is the New South Wales Medical Board, or its secretary, to consider that they have the right to give approval for the use of degrees that have been honestly earned? Might I suggest further, sir, that to say that this is a serious matter which could lead to a charge of infamous conduct would be laughable if it were not so insulting?

I am well aware, sir, who are the members of the Medical Board, and have the greatest respect for them, as professional men, but I consider that they have overstepped the

bounds of decency with this insulting piece of paper. I intend to continue to use my full qualifications, and will defy the Medical Board to charge me with infamous conduct for so doing.

Yours, etc.,

137 Dangar Street,
Armidale,
May 30, 1956.

SIR: The Medical Board of New South Wales regrets any hurt or adverse feeling caused by the recent circular to registered practitioners concerning their use in practice of unregistered degrees, titles *et cetera*. The circular was, however, in respect of both its dispatch and the words used, strictly in accordance with the Board's duties under the *Medical Practitioners Act*. Nevertheless the Board feels that the following facts which, in part at least, appear to have been unknown to, though readily ascertainable by, those responsible for criticism, should be circulated in the hope of clarifying the position.

The Medical Board is appointed to administer certain provisions of the *Medical Practitioners Act* of New South Wales. It has no powers beyond those set out in the Act; it has no power to initiate or introduce any regulation or legislation, it has no power to cite a registered person for breaches of the Act. It is required to do certain things under the Act. One of these duties, set out in Section 15, is to keep a register of medical practitioners registered under the Act, and in the case of each such registered person the Board must cause to be entered in the Register his full name and address, the date of his registration and the particulars of the qualification or qualifications in respect of which registration is granted. The Board is also required in Section 25 to maintain the Register free of faults or incorrect particulars of registration. Further under Section 15 it is given power to determine what further particulars of any certificate, diploma, membership, degree, licence, letters, testimonial or other title, status, document or description a registered person is authorized by the Board to use in relation to himself as a medical practitioner or in the practice of his profession. On the other hand, under

DISEASES NOTIFIED IN EACH STATE AND TERRITORY OF AUSTRALIA FOR THE WEEK ENDED MAY 26, 1956.¹

Disease.	New South Wales.	Victoria.	Queensland.	South Australia.	Western Australia.	Tasmania.	Northern Territory.	Australian Capital Territory.	Australia.
Acute Rheumatism	3(1)	3(2)	4(3)	..	..	..	..	..	10
Amoebiasis .. ..	..	..	..	..	..	..	..	..	..
Ancylostomiasis	1	..	..	..	..	..	..	..	1
Anthrax .. ..	..	..	..	..	..	..	..	..	..
Bilharziasis .. ..	..	..	..	..	..	..	..	..	..
Brucellosis	1	1	..	..	..	..	..	..	2
Cholera .. ..	..	..	..	..	..	..	..	..	..
Chorea (St. Vitus) .. ..	..	..	..	..	..	..	..	..	..
Dengue .. ..	..	..	..	..	..	..	..	..	..
Diarrhoea (Infantile)	2	9(7)	3(1)	..	4(4)	..	..	..	18
Diphtheria .. ..	..	2(2)	1	..	2(2)	..	..	..	5
Dysentery (Bacillary) .. ..	..	..	4(2)	..	1	..	..	..	5
Encephalitis .. ..	..	..	1	..	..	..	..	..	1
Ehrlichiosis .. ..	..	..	..	..	..	..	..	..	..
Homologous Serum Jaundice .. ..	..	..	..	..	..	..	..	..	..
Rydalid .. ..	..	..	..	..	..	..	..	..	..
Infective Hepatitis	82(45)	70(30)	..	14(3)	7(5)	20	..	..	202
Lead Poisoning .. ..	..	..	..	..	..	..	..	..	..
Leprosy .. ..	..	..	..	..	..	..	1	..	1
Leptospirosis .. ..	..	..	1	..	..	..	..	..	1
Malaria .. ..	..	..	5	..	..	..	3	..	8
Meningococcal Infection	1	1	..	..	..	..	..	..	2
Ophthalmia .. ..	..	..	..	..	..	..	..	..	..
Ornithosis .. ..	..	..	..	..	..	..	..	..	..
Paratyphoid .. ..	..	..	..	..	..	..	..	..	..
Plague .. ..	..	..	..	..	..	..	..	..	..
Pollomyelitis	5(2)	4(1)	3(1)	..	..	1	..	..	13
Puerperal Fever	1(1)	..	..	1	..	..	..	..	12
Rubella .. ..	..	7(8)	..	..	1(1)	..	..	..	2
Salmonella Infection .. ..	..	..	..	..	..	..	2	..	5
Scarlet Fever	20(9)	11(7)	3(1)	2(1)	1	..	..	..	27
Smallpox .. ..	..	..	..	..	..	..	..	..	..
Tetanus .. ..	..	..	1	..	..	..	..	..	1
Trachoma .. ..	..	..	..	..	2	..	2	..	4
Trichinosis .. ..	..	..	..	..	..	..	..	..	..
Tuberculosis	36(28)	11(7)	6(6)	7(3)	6(3)	2	1	..	69
Typhoid Fever .. ..	..	1(1)	..	..	..	..	..	..	1
Typhus (Flea, Mite- and Tick-borne)	1	..	1	..	..	..	..	..	2
Typhus (Louse-borne) .. ..	..	..	..	..	..	..	..	..	..
Yellow Fever .. ..	..	..	..	..	..	..	..	..	..

¹ Figures in parentheses are those for the metropolitan area.

Section 27 a registered person shall be deemed guilty of infamous conduct who uses in relation to himself or his practice any such certificate, diploma *et cetera* not authorized by the Board. In a recent judgement of the Full Court of New South Wales, the Chief Justice stated: "Unless, therefore, any special qualifications which a legally qualified medical practitioner may possess be entered as particulars in the Register it is infamous conduct on his part to use those qualifications or make reference to them in his practice, and, of course, infamous conduct on the part of a medical practitioner may have very serious consequences."

In these circumstances and especially in view of the words of the Full Court's judgement referred to and in the light of the Board's knowledge that many registered medical practitioners were unknowingly in breach of the Act, can there be any suggestion that the Board did more than its duty in circularizing registered persons for information as to degrees, certificates, titles *et cetera* they are using in relation to themselves in practice? With the purpose in view of stating exactly their particulars in the Register, so as to save them from possible disciplinary action for the use of unauthorized degrees, titles *et cetera*, the Board might justly be said to have acted in their clear interests by sending the circular. If indeed members of the profession will re-read the circular in the light of the above explanation of the provisions of the Act, it will at once be patent to them that far from desiring to dictate to registered persons what titles and qualifications they should use, the Board was anxious to draw the attention of the profession to provisions which can only benefit the public and the holders of genuine qualifications, but infringement of which might lead to severe penalties.

The Board desires at this stage to make two further observations. It will register titles and honours conferred by the Crown as well as military decorations, if application be made by the holder. It will also enter in the Register all degrees, whether medical or non-medical, which are recognized by the Board on the application of the holder.

It is hoped by the Board that the above statement will allay unwarranted fears and provide an adequate reply to anxious criticisms.

On behalf of the Medical Board.

Yours, etc.,

Sydney,
June 8, 1956.

COTTER HARVEY,
President.

Royal Australasian College of Surgeons.

NEW SOUTH WALES MEETING.

A MEETING arranged by the New South Wales State Committee of the Royal Australasian College of Surgeons will be held on June 27, 1956, at 8.15 p.m. in the Stawell Hall. The Royal Australasian College of Physicians, 145 Macquarie Street, Sydney. The subject will be: "What Do We Achieve in the Surgical Treatment of Cancer?" Dr. H. O. Lancaster and Dr. B. T. Edey will be the speakers. This meeting is open to all medical practitioners.

Post-Graduate Work.

THE POST-GRADUATE COMMITTEE IN MEDICINE IN THE UNIVERSITY OF SYDNEY.

Week-End Course at Katoomba.

THE Post-Graduate Committee in Medicine in the University of Sydney announces that, in conjunction with the Blue Mountains Medical Association, a week-end course will be held at Katoomba in the ballroom at the Carrington Hotel on Saturday and Sunday, June 30 and July 1, 1956. The programme is as follows:

Saturday, June 30: 2 p.m., registration; 2.30 p.m., "Common Causes of Pain in the Shoulder and Feet", Dr. Hugh C. Barry; 4 p.m., "Do's and Don'ts in Doctoring Dermatitis", Dr. Richard B. Perkins.

Sunday, July 1: 10 a.m., "Bronchial Carcinoma", Dr. Maurice R. Joseph; 11.30 a.m., "Injuries and Disorders of the Knee Joint", Dr. Hugh C. Barry; 2.30 p.m., "Tips on Tinea", Dr. Richard B. Perkins; 4 p.m., "Recent Medical Advances", Dr. Maurice R. Joseph.

The fee for attendance at the course will be £3 3s., and those wishing to attend are requested to communicate as soon as possible with Dr. Nicholas Larkins, Honorary Secretary, Blue Mountains Medical Association, 199 Katoomba Street, Katoomba. Telephone: Katoomba 111.

Medical Appointments.

Dr. Charles Russell Blower has been appointed Quarantine Officer, Thevenard, South Australia, pursuant to the provisions of the *Quarantine Act*, 1908-1950.

Deaths.

THE following death has been announced:

HEASLOP.—James William Heaslop, on June 4, 1956, at Brisbane.

Diary for the Month.

- JUNE 18.—Victorian Branch, B.M.A.: Finance Subcommittee.
- JUNE 19.—New South Wales Branch, B.M.A.: Medical Politics Committee.
- JUNE 20.—Victorian Branch, B.M.A.: Country Branch Meeting.
- JUNE 20.—Western Australian Branch, B.M.A.: General Meeting.
- JUNE 21.—South Australian Branch, B.M.A.: Scientific Meeting.
- JUNE 21.—New South Wales Branch, B.M.A.: Clinical Meeting.
- JUNE 21.—Victorian Branch, B.M.A.: Executive of Branch Council.
- JUNE 22.—Queensland Branch, B.M.A.: Council Meeting.
- JUNE 26.—New South Wales Branch, B.M.A.: Ethics Committee.

Medical Appointments: Important Notice.

MEDICAL PRACTITIONERS are requested not to apply for any appointment mentioned below without having first communicated with the Honorary Secretary of the Branch concerned, or with the Medical Secretary of the British Medical Association, Tavistock Square, London, W.C.1.

New South Wales Branch (Medical Secretary, 135 Macquarie Street, Sydney): All contract practice appointments in New South Wales.

Queensland Branch (Honorary Secretary, B.M.A. House, 225 Wickham Terrace, Brisbane, B17): Bundaberg Medical Institute. Members accepting LODGE appointments and those desiring to accept appointments to any COUNTRY HOSPITAL or position outside Australia are advised, in their own interests, to submit a copy of their Agreement to the Council before signing.

South Australian Branch (Honorary Secretary, 80 Brougham Place, North Adelaide): All contract practice appointments in South Australia.

Western Australian Branch (Honorary Secretary, 205 Saint George's Terrace, Perth): Norseman Hospital; all contract practice appointments in Western Australia. All government appointments with the exception of those of the Department of Public Health.

Editorial Notices.

MANUSCRIPTS forwarded to the office of this journal cannot under any circumstances be returned. Original articles forwarded for publication are understood to be offered to THE MEDICAL JOURNAL OF AUSTRALIA alone, unless the contrary be stated.

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